

FINAL  
ENVIRONMENTAL ASSESSMENT  
  
FOR  
  
PROPOSED CONSTRUCTION III PROJECTS  
  
Buckley Air Force Base, Colorado



*Prepared by*

Headquarters Air Force Center for Environmental Excellence  
Project Execution Division

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**FINDING OF NO SIGNIFICANT IMPACT  
PROPOSED CONSTRUCTION III PROJECTS  
BUCKLEY AIR FORCE BASE, COLORADO**

**AGENCY:** United States Air Force, 460th Space Wing

**BACKGROUND**

The United States Air Force (USAF) conducted an Environmental Assessment (EA) of the potential environmental and social consequences of implementing proposed Construction III projects at Buckley Air Force Base (AFB), pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 United States Code §4321 to §4370d), Council of Environmental Quality's (CEQ) implementing regulations (40 Code of Federal Regulations Part 1500-1508), and the Air Force Environmental Impact Analysis Process (EIAP) as promulgated in 32 CFR Part 989 (EIAP, 6 July 1999, as amended by 66 FR 16866, 28 March 2001). The EA is incorporated by reference herein.

**PROPOSED ACTION**

To support the mission requirements of the 460th Space Wing at Buckley AFB, the USAF proposes to construct and operate four facilities planned for Fiscal Years 2006 and 2007: a Small Arms Range Complex, a Logistics Readiness Complex, a Consolidated Services Facility, and a Communications Center at Buckley AFB. These four projects are included in the \$175 million, 5-year capital improvements program at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB.

Small Arms Range Complex – This project consists of constructing an approximately 23,735 square foot (ft<sup>2</sup>) indoor firing range with a 21-position-firing area for small arms non-lead rounds and a separate two-position M60 firing area for lead-containing rounds; an outdoor grenade training area; and an approximately 9,785 ft<sup>2</sup> Combined Arms Training and Maintenance building.

Logistics Readiness Complex – This project provides training and administration space in addition to the area for storing, issuing, and maintaining readiness materiel for the 460th Space Wing. The new facility will include constructing an approximately 24,650 ft<sup>2</sup> warehouse for administrative office space; a conference/training room; a deployment control center; mobility processing area; mobility bag storage area; independent weapons storage vault; hazardous materials storage; a shop area; and a Traffic Management Office.

Consolidated Services Facility – This project provides a single location for Buckley AFB personnel to conduct business with the Services functions that are currently scattered on the base. The new facility will include constructing an approximately 14,101 ft<sup>2</sup> building for a Services Director and staff; Community Support Flight; Combat Support Flight; Resources Flight; Human Resources; Marketing/Sponsorship; Food Services staff; Mortuary/Search and Rescue; Honor Guard; Unit Control Center; and Information Ticket Tours offices and sales.

Communications Center – This project involves construction of an approximately 37,738 ft<sup>2</sup>- addition to the existing Communications Center, and will provide a single location to include administrative offices; information management space and offices; expanded base telephone operations; additional telephone maintenance; telecommunications equipment control; base network control center; technical control center; and information assurance center.

## ALTERNATIVES CONSIDERED

In addition to the Proposed Action for each of the four proposed projects, a No-Action Alternative (as prescribed by CEQ regulations) and two action alternatives were considered and evaluated in the EA. Under the No Action Alternative, none of the four proposed projects would be built, nor would the expanding mission at Buckley AFB be met. The USAF also evaluated two alternative sites at various locations across the base for each of the four proposed projects.

## SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS

Consideration of effects described in the EA and a finding that they are not significant is a necessary and critical part of this Finding of No Significant Impact (FONSI) as required by 40 CFR 1508.13. Significance criteria are defined in 40 CFR 1508.27 to consider direct, indirect, and cumulative impacts and the context and intensity of impacts. The potential impacts of each of the four projects are analyzed in detail in the Affected Environment and Environmental Consequences section of the EA for the following resource areas and conditions: land use, socioeconomics, air quality, noise, soils, water resources, biological resources (including vegetation, wetlands, wildlife, and threatened, endangered and other sensitive species), hazardous materials and waste, solid waste and pollution prevention, transportation, utilities, and environmental justice. The analyses indicated that implementing the proposed actions would have no significant direct, indirect, or cumulative effects on the quality of the natural or human environment. Best management practices described in the EA and incorporated into each of the four proposed actions, including post-construction monitoring and documentation, are generally required of the proponent by laws, regulations, or USAF policies and are adopted by this decision.


## PUBLIC INVOLVEMENT

NEPA, CEQ regulations, and the EIAP at 32 CFR Part 989 require public review of the EA before approval of the FONSI and implementation of any Proposed Action. The Draft EA was made available for a 30-day Federal, state, and local agency and public review and comment period through publication of a notice of availability in the May 8, 2005 edition of the *Denver Post* and in the May 12, 2005 edition of the *Aurora Sentinel*. Copies of the Draft EA and Draft FONSI were distributed to individuals on the project mailing list and to various Federal, state, and local agencies, and a hard copy of the Draft EA and Draft FONSI was placed in the Denver, CU-Boulder, and Aurora public libraries for dissemination. The public comment period on the EA closed on June 10, 2005. The USAF received comments on the project from five agencies: U.S. Environmental Protection Agency Region 8; U.S. Fish and Wildlife Service; Colorado Department of Public Health and Environment; Colorado Historical Society, State Historic Preservation Officer; and City of Aurora.

## FINDING OF NO SIGNIFICANT IMPACT

Based on the requirements of NEPA, CEQ regulations, and the EIAP at 32 CFR Part 989, I conclude the environmental effects of the four Proposed Actions are not significant and therefore, an environmental impact statement is not required for these projects and thus will not be prepared. The signing of this FONSI completes the USAF EIAP.

Approved: \_\_\_\_\_

  
DAVID W. ZIEGLER  
Colonel, USAF  
Commander

NOV 18 2005

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Date

# TABLE OF CONTENTS

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<b>Section 1</b>	<b>Introduction.....</b>	<b>1-1</b>
1.1	Background .....	1-1
1.2	Purpose and Need for the Proposed Action .....	1-1
1.2.1	Small Arms Range Complex .....	1-1
1.2.2	Logistics Readiness Complex .....	1-7
1.2.3	Consolidated Services Facility.....	1-7
1.2.4	Communications Center.....	1-7
1.3	Scope of the Environmental Assessment.....	1-8
1.3.1	Resources to Be Analyzed In This EA .....	1-8
1.3.2	Resources Eliminated From Detailed Analysis .....	1-8
1.4	Applicable Regulatory Requirements .....	1-9
1.5	Organization of the Environmental Assessment.....	1-10
<b>Section 2</b>	<b>Description of Proposed Action and Alternatives .....</b>	<b>2-1</b>
2.1	Identification of Selection Criteria.....	2-1
2.1.1	Small Arms Range Complex .....	2-1
2.1.2	Logistics Readiness Complex .....	2-1
2.1.3	Consolidated Services Facility.....	2-2
2.1.4	Communications Center.....	2-2
2.2	Description of the Proposed Action.....	2-2
2.2.1	Small Arms Range Complex .....	2-2
2.2.2	Logistics Readiness Complex .....	2-9
2.2.3	Consolidated Services Facility.....	2-15
2.2.4	Communications Center.....	2-21
2.3	Description of Other Action Alternatives .....	2-21
2.3.1	Small Arms Range Complex .....	2-21
2.3.2	Logistics Readiness Complex .....	2-25
2.3.3	Consolidated Services Facility.....	2-25
2.3.4	Communications Center.....	2-26
2.4	No Action Alternative.....	2-27
2.4.1	Small Arms Range Complex .....	2-27
2.4.2	Logistics Readiness Complex .....	2-27
2.4.3	Consolidated Services Facility.....	2-27
2.4.4	Communications Center.....	2-27
2.5	Alternatives Considered But Dismissed .....	2-28
2.5.1	Small Arms Range Complex .....	2-28
2.5.2	Logistics Readiness Complex .....	2-28
2.5.3	Consolidated Services Facility.....	2-28
2.5.4	Communications Center.....	2-28
2.6	Comparison of Alternatives .....	2-28

# TABLE OF CONTENTS

---

<b>Section 3</b>	<b>Affected Environment and Environmental Consequences.....</b>	<b>3-1</b>
3.1	Land Use .....	3-1
3.1.1	Affected Environment.....	3-1
3.1.2	Impacts .....	3-7
3.2	Socioeconomics .....	3-13
3.2.1	Affected Environment.....	3-13
3.2.2	Impacts .....	3-14
3.3	Air Quality .....	3-17
3.3.1	Affected Environment.....	3-17
3.3.2	Impacts .....	3-18
3.4	Noise .....	3-26
3.4.1	Affected Environment.....	3-26
3.4.2	Impacts .....	3-30
3.5	Soils.....	3-34
3.5.1	Affected Environment.....	3-34
3.5.2	Impacts .....	3-35
3.6	Water Resources .....	3-39
3.6.1	Affected Environment.....	3-39
3.6.2	Impacts .....	3-46
3.7	Biological Resources .....	3-50
3.7.1	Vegetation .....	3-50
3.7.2	Wetlands .....	3-54
3.7.3	Wildlife .....	3-57
3.7.4	Threatened, Endangered, and Other Sensitive Species.....	3-64
3.8	Hazardous Materials and Waste.....	3-70
3.8.1	Affected Environment.....	3-70
3.8.2	Impacts .....	3-80
3.9	Solid Waste and Pollution Prevention .....	3-83
3.9.1	Affected Environment.....	3-84
3.9.2	Impacts .....	3-84
3.10	Transportation .....	3-87
3.10.1	Affected Environment.....	3-87
3.10.2	Impacts .....	3-89
3.11	Utilities.....	3-91
3.11.1	Affected Environment.....	3-91
3.11.2	Impacts .....	3-92
3.12	Environmental Justice .....	3-96
3.12.1	Affected Environment.....	3-97
3.12.2	Impacts .....	3-98
<b>Section 4</b>	<b>Cumulative Impacts.....</b>	<b>4-1</b>
4.1	Impact Analysis .....	4-1
<b>Section 5</b>	<b>List of Preparers .....</b>	<b>5-1</b>

# TABLE OF CONTENTS

---

Section 6	Distribution List and Agencies and Individuals Contacted .....	6-1
-----------	--	-----

Section 7	References .....	7-1
-----------	------------------	-----

Appendix A	AF Form 813s
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Appendix B	Notice of Availability and Affidavit of Publication
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Appendix C	Interagency Coordination Letters
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## List of Tables

Table 2-1	Comparison of Alternatives with Selection Criteria
Table 2-2	Comparison of Alternatives with Resource Impacts
Table 3-1	Calendar Year 2003 Summary of Basewide Air Emissions Inventory
Table 3-2	Small Arms Range Construction Air Emissions
Table 3-3	Small Arms Range Operation Air Emissions
Table 3-4	Logistics Readiness Complex Construction Air Emissions
Table 3-5	Logistics Readiness Complex Operation Air Emissions
Table 3-6	Consolidated Services Facility Construction Air Emissions
Table 3-7	Consolidated Services Facility Operation Air Emissions
Table 3-8	Communications Center Construction Air Emissions
Table 3-9	Communications Center Operation Air Emissions
Table 3-10	Increased Impervious Surface Calculations
Table 3-11	Threatened, Endangered, and Other Sensitive Species and Their Occurrence at Buckley AFB
Table 3-12	Racial Makeup of Arapahoe County, Colorado 2000
Table 4-1	Cumulative Impacts on Resources

# TABLE OF CONTENTS

---

## List of Figures

Figure 1-1	Regional Context Map for Buckley AFB
Figure 1-2	General Location of the Proposed and Alternative Construction III Sites
Figure 2-1	General Location of the Proposed Small Arms Range Complex
Figure 2-2	Small Arms Range Conceptual Drawing
Figure 2-3	General Location of the Proposed Logistics Readiness Complex
Figure 2-4	Logistics Readiness Complex Conceptual Drawing
Figure 2-5	General Location of the Proposed Consolidated Services Facility
Figure 2-6	Consolidated Services Facility Conceptual Drawing
Figure 2-7	General Location of the Proposed Communications Center
Figure 2-8	Photo of Small Arms Range Complex Alternative 1 Site
Figure 2-9	Photo of Small Arms Range Complex Alternative 2 Site
Figure 2-10	Photo of Logistics Readiness Complex Alternative 1 Site
Figure 2-11	Photo of Logistics Readiness Complex Alternative 2 and Consolidated Services Facility Alternative 1 Site
Figure 2-12	Photo of Consolidated Services Facility Alternative 2 Site
Figure 2-13	Photo of Communications Center Alternative 1 Site
Figure 2-14	Photo of Communications Center Proposed and Alternative 2 Site
Figure 3-1	Existing Land Use
Figure 3-2	Future Land Use
Figure 3-3	Buckley AFB, NOISEMAP
Figure 3-4	Wetlands on Buckley AFB
Figure 3-5	Prairie Dogs and Burrowing Owls on Buckley AFB
Figure 3-6	Former, Existing, and Future Structures at Buckley AFB
Figure 3-7	Environmental Restoration and Munitions Response Program Sites Map

# ACRONYMS

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%	Percent
460 SW	460th Space Wing
ac	acre
ACAM	Air Conformity Analysis Model
ADA	American Disabilities Act
AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zone
ANG	Air National Guard
AQCR	Air Quality Control Region
APCD	Air Pollution Control Division
AST	aboveground storage tank
BMPs	best management practices
CAQCC	Colorado Air Quality Control Commission
CATM	Combined Arms Training and Maintenance
CDPHE	Colorado Department of Public Health and Environment
CDOW	Colorado Division of Wildlife
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIP	Capital Improvements Program
CO	carbon monoxide
dB	decibel
DNL	day-night level
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
ft	feet
ft <sup>2</sup>	square feet
FY	Fiscal Year

# ACRONYMS

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HAP	Hazardous Air Pollutants
HAZMART	Hazardous Materials Pharmacy
HVAC	heating ventilation and air conditioning
IRP	Installation Restoration Program
ITT	Information Ticket Tours
m	meter
m <sup>2</sup>	square meter
m <sup>3</sup>	cubic meter
MBTA	Migratory Bird Treaty Act
mm	millimeter
MMRP	Military Munitions Response Program
NEPA	National Environmental Policy Act
NLR	Noise Level Reduction
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
ODS	Ozone Depleting Substances
P2	Pollution Prevention
PCB	polychlorinated biphenyl
pCi/L	picoCuries per Liter
PM10/2.5	particulate matter particles equal to or less than 10/2.5 microns
ppm	part per million
PSD	Prevention of Significant Deterioration
QRP	Qualified Recycling Program
ROI	region of influence
RTD	Regional Transportation District
SIP	State Implementation Plan
SO <sub>2</sub>	Sulfur dioxide
SO <sub>x</sub>	Sulfur oxides
SPCC	Spill Prevention and Countermeasure Control
SW	Space Wing
SWPPP	Storm Water Pollution Prevention Plan
TPY	tons per year
USC	U.S. Code
USAF	U.S. Air Force



## **ACRONYMS**

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USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
UXO	unexploded ordnance
VOC	volatile organic compound
WWII	World War II

# ACRONYMS

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This chapter describes the purpose of and need for the proposed action at Buckley Air Force Base (AFB), provides summaries of the scope of the environmental review and the applicable regulatory requirements, and presents an overview of the organization of the document.

Federal agencies are required to consider the environmental consequences of proposed actions in the decision-making process under the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] §4321 to §4370d) and the Council of Environmental Quality's (CEQ) implementing regulations (40 Code of Federal Regulations [CFR] Part 1500-1508). This Environmental Assessment (EA) for proposed Construction III at Buckley AFB was prepared in accordance with NEPA.

Additionally, this EA complies with the Air Force Environmental Impact Analysis Process (EIAP) for the proposed action as promulgated in 32 CFR Part 989 (EIAP, 6 July 1999, as amended by 66 FR 16866, 28 March 2001), which implements NEPA, CEQ regulations, and Department of Defense (DoD) Instruction 4715.9 (Environmental Planning and Analysis).

## **1.1 BACKGROUND**

Buckley AFB occupies approximately 3,283 acres (1,328 hectares) adjacent to the city of Aurora, Arapahoe County, Colorado, within the Denver metropolitan area (Figure 1-1). The 460th Space Wing (460th SW) is the current host of the installation and their mission is to provide combatant commanders with superior global surveillance, worldwide missile warning, expeditionary forces, and support to homeland defense missions. The installation houses diverse missions, military services, and components that include active-duty, National Guard, and Reserve personnel from the Air Force, Army, Navy, and Marine Corps to accomplish satellite support operations, fighter operations, installation support, and other important missions. Currently, there are approximately 3,600 active-duty personnel, approximately 2,400 Guard and Reserve personnel, approximately 3,300 civilian employees, and approximately 1,750 contract employees at the base (Buckley AFB, 2004a). In addition, Buckley AFB serves approximately 22,000 retirees and approximately 55,000 dependents and veterans.

Buckley AFB is transforming from a minimally developed and landscaped installation for weekend influxes of Reserve and Guard personnel into a fully developed active-duty AFB. The base must meet the needs of diverse military missions by providing facilities that satisfy different requirements while maintaining the look and feel of a singular, well planned military installation integrated into its natural environment (Buckley AFB, 2002).

## **1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION**

The United States Air Force (USAF) has prepared this EA to assess the environmental and social impacts resulting from the proposed action to construct and operate four facilities planned for Fiscal Years (FYs) 2006 and 2007: a Small Arms Range Complex, a Logistics Readiness Complex, a Consolidated Services Facility, and a Communications Center at Buckley AFB (Figure 1-2). These four projects are included in the \$175 million, 5-year capital improvements program at the base to achieve the overall goal of turning a former Air National Guard base into a fully functioning, active-duty AFB.

### **1.2.1 Small Arms Range Complex**

The purpose of this project is to provide a facility that supports mission requirements to qualify and maintain personnel qualification standards for weapons training and qualification for the 460th SW and its tenant organizations. The existing nonconforming, partially-contained small arms range at Building 1415 was built in 1985 and is in poor condition. The facility does not meet current Air Force operational, safety, and training standards and can no longer support the mission.

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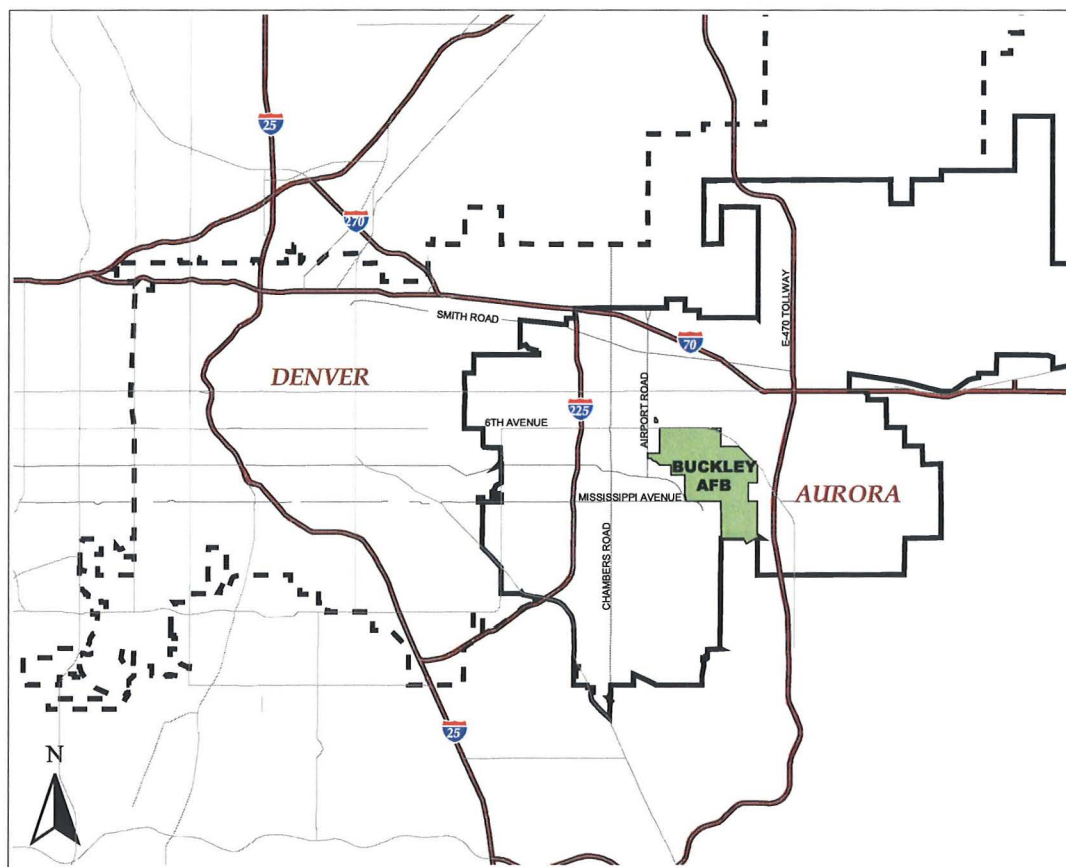
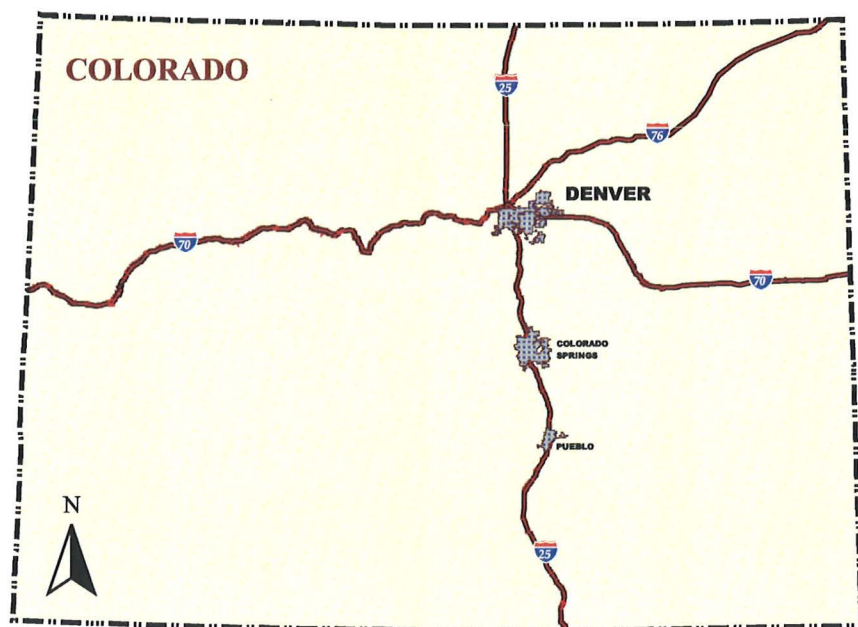
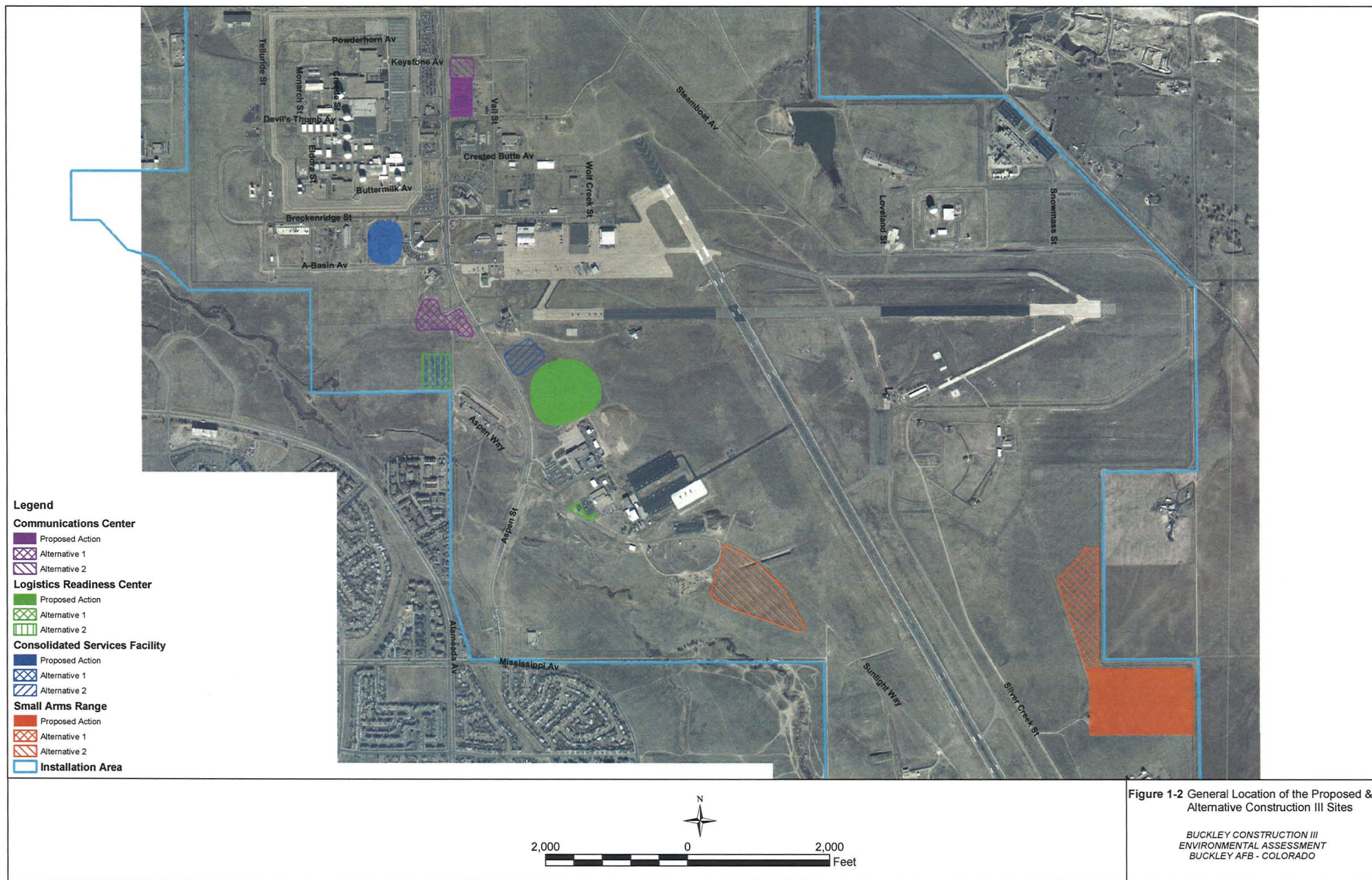


Figure 1-1 Regional Context Map for  
Buckley AFB

BUCKLEY AFB CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AFB - COLORADO

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The support structures, Buildings 1411 and 1413, date back to 1942, and their appearance and functionality reflect their old age. A prime example is the placement of a portable latrine at the site, as there are no water or sanitary sewer utilities in the area. In addition, the existing range lies within the Airfield Primary Surface, requiring a safety waiver in order to conduct operations; and a proposed high-speed taxiway is planned for the existing site, parallel to the primary runway. The existing range also does not provide capability for firing or qualifying on M60 or grenade equipment or for providing combined arms training and maintenance (CATM). Currently, these heavier arms require transportation to Fort Carson, Colorado, to be used in training exercises. This effort requires secured transport of the weapons and travel for the trainees.

### **1.2.2 Logistics Readiness Complex**

The purpose of this project is to provide a consolidated location for Logistics Operations. Logistics Operations are essential at Buckley AFB to support the 460th SW, but there is no adequate facility to meet current mission requirements. Logistics Operations are currently scattered in different locations at the base, resulting in continued inefficient operations. The Readiness Flight, Transportation Management Office, and Supply Operations occupy Building 940, a facility constructed in 1971 that does not meet current fire safety codes, building codes, or energy conservation standards.

Building 940 is in the Airfield Clear Zone of the runway and thus operates under airfield safety waivers. In addition, the location and configuration of this existing facility does not meet the minimum Antiterrorism/Force Protection standards. The conversion of the Buckley installation in 2000 from an Air National Guard installation to an operating AFB has added approximately 1,000 military staff and civilian personnel at the installation, and a consolidated location is needed to provide training, storage, and processing areas to support the materiel handling areas for the deployment mission.

### **1.2.3 Consolidated Services Facility**

The purpose of this project is to provide a single location for Buckley AFB personnel to conduct business with the services functions that are currently scattered around the base. These functions include the Services Director and staff, Community Support Flight, Combat Support Flight, Resources Flight, Human Resources, Marketing/Sponsorship, Food Services staff, Mortuary/Search and Rescue, the Honor Guard, Unit Control Center, and Information Ticket Tours (ITT) offices and sales. These services are currently housed in overcrowded, leased, temporary modular buildings, which are scheduled for removal in FY 2007.

### **1.2.4 Communications Center**

The purpose of this project is to provide one communications center that would accommodate communications personnel who are now located in Building 950, the 460th SW communications building; consolidate primary communications equipment; and provide for new telecommunications equipment needed to support the new missions at Buckley AFB.

At present, communications equipment is located in Building 850, Building 950, and Building 730. Building 850 was built in 1975, sized for very limited telephone operations, and is too small to house the new equipment or personnel. Temporary arrangements have been made in Building 950 to house network and secure communication functions and 120 personnel temporarily. Building 950 is located within the clear zone of the flightline and must be demolished, having been condemned for several years. Building

730, sized for Air National Guard office space, is the most current of the three facilities, but was not planned as a communication facility.

The current communication infrastructure is insufficient to support the large increase in expansion of facilities and data transmission requirements, and it is not possible to expand Building 850 for cable, switching, or personnel capacity requirements. There is currently inadequate space in any of these facilities to store critical communications maintenance equipment and supplies, and to provide for secure storage of communication security documents and mandatory records staging. The telecommunications switch and cable rack will not handle the future, end-strength capacity projected from the base building. Additional space in the current switch and rack area in Building 850 is unavailable.

As a result of the facility inadequacies, communications systems are split into various facilities, personnel are located in various locations around the base, and outside agencies have access to critical communication equipment and sensitive network equipment, mandating that all communication equipment be collocated in a new facility or expanded facility on Buckley AFB.

## **1.3 SCOPE OF THE ENVIRONMENTAL ASSESSMENT**

### **1.3.1 Resources to be Analyzed in this EA**

This EA addresses the potential impacts of the proposed action to land use; socioeconomics; air quality; noise; soils; water resources, including surface water and groundwater; biological resources, including vegetation, wetlands, wildlife, and threatened and endangered species; hazardous materials and wastes; solid waste and pollution prevention; transportation; utilities; and environmental justice.

The draft EA will be made available for public and agency review and comment. After reviewing the analysis in this EA, a decision will be made as to whether to issue a finding of no significant impact (FONSI) or to proceed with the development of an environmental impact statement (EIS) to further analyze the potentially significant impacts resulting from implementation of the proposed action or alternatives.

### **1.3.2 Resources Eliminated from Detailed Analysis**

The following environmental issues were initially considered, but were determined not to be relevant to the proposed action being considered. By utilizing standard measures, such as avoidance and best management practices (BMPs), these issues would not be impacted by the proposed action. Consequently, they have been eliminated from detailed analysis.

- **Floodplains** – Executive Order (EO) 11988, “Floodplain Management,” requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. Although the Alternative 2 site for the Small Arms Range is located near the 100-year floodplain of East Tollgate Creek, the proposed project areas and alternative sites have been located outside of the 100-year floodplain, as depicted in Figure 3-4. Therefore, floodplain management was dismissed as an environmental issue.
- **Geology** – The Air Force is required to protect significant geologic features. The proposed project areas and alternative sites would have little to no effect on geology of the area. Therefore, geology was dismissed as an environmental issue.

- Cultural Resources – The National Historic Preservation Act, as amended (16 USC 470 et seq.) and NEPA require the consideration of impacts on cultural resources listed on or eligible for listing on the National Register of Historic Places. Buckley AFB does not anticipate that any historic structures or buildings, or archaeological sites would be impacted by the proposed project (GeoMarine Inc, 2004). There are no known historical and or archaeological resources in the proposed and alternative sites; therefore, impacts to cultural resources are not expected. In a letter dated May 13, 2005 (Appendix C), the State Historic Preservation Officer concurred with the decision of no adverse impacts to cultural resources from the proposed Construction III projects. Should any cultural resources be uncovered during construction of any of these facilities, work would stop and the site would be evaluated prior to the continuation of the project. Therefore, historic structures and buildings, and archeological resources were dismissed as an environmental issue.
- Visual Resources – Because the base is zoned as industrial by the city of Aurora and the proposed projects take place within this industrial area, there would be no new impacts to visual or scenic resources. Minor, adverse, and short-term impacts could result from temporary construction activities. Therefore, visual resources were dismissed as an environmental issue.
- Airspace – Because the proposed projects would not involve any flying and/or flying missions, there would be no new impacts to airspace. Therefore, air space was dismissed as an environmental issue.

## **1.4 APPLICABLE REGULATORY REQUIREMENTS**

This EA is documentation of the EIAP, and complies with NEPA, CEQ regulations, and DoD Instruction 4715.9. The EA addresses all applicable federal, state, and local laws and regulations, including but not limited to the Clean Air Act; Endangered Species Act; AF132-7040, Air Quality Compliance; EO 11990, Protection of Wetlands; EO 12898 Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations; EO 13045 Protection of Children from Environmental Health Risks and Safety Risks; Resource Conservation and Recovery Act; and Comprehensive Environmental, Response, Compensation, and Liability Act.

In accordance with the National Pollutant Discharge Elimination System (NPDES) requirements, a site-specific Stormwater Pollution Prevention Plan (SWPPP), including sediment and erosion control measures, would be developed and implemented for construction activities. A Notice of Intent would be filed to obtain coverage under the United States Environmental Protection Agency (USEPA) Stormwater Construction General Permit.

In addition, other permits and notifications that would be needed prior to construction include:

- fugitive dust permit,
- construction permit and Title V modification for stationary sources of air pollutants that are not exempt per Colorado Department of Public Health and Environment (CDPHE) Regulation Number 3 (5 CCR 1001-5), and
- review and update inventory of stationary emission units as required by the Title V Operating Permit, Condition 9.1.

## **1.5 ORGANIZATION OF THE ENVIRONMENTAL ASSESSMENT**

Pursuant to 32 CFR Part 989 implementing the CEQ regulations (40 CFR 1502), this document consists of the following sections:

**Acronyms and Abbreviations:** provides a list of acronyms and abbreviations used throughout the document.

**Section 1 – Introduction:** Purpose and Need for the Proposed Action provides background information about the installation; the purpose and need for the proposed action; the scope of the environmental review; applicable regulatory requirements; and a brief description of how the document is organized.

**Section 2 – Description of the Proposed Action and Alternatives:** provides the selection criteria; a detailed description of the proposed action, other action alternatives, and the No Action Alternative for each of the construction projects; other alternatives that were considered but not carried forward in the evaluation process; and an alternatives comparison table.

**Section 3 – Affected Environment and Environmental Consequences:** provides a description of the existing conditions of the areas potentially affected by the alternatives identified to implement the proposed action; and an analysis of the direct and indirect project and cumulative impacts to resources from the alternatives.

**Section 4 – Cumulative Impacts:** provides an analysis of present and reasonably foreseeable projects, and the potential incremental impacts of the proposed actions when considered along with these other planned or reasonably foreseeable projects.

**Section 5 – List of Preparers:** provides a list of the document preparers and contributors.

**Section 6 – Distribution List and Agencies and Individuals Contacted:** provides lists of agencies/individuals to whom the EA will be distributed and the agencies/individuals who were contacted for information in the preparation of this document.

**Section 7 – References:** provides a listing of the references used in preparing this EA.

This chapter identifies selection criteria, and provides a detailed description of the proposed action, other action alternatives, and the No Action Alternative for each of the four construction projects. Alternatives that were considered and dismissed are also discussed. In addition, a comparison of how the alternatives meet the selection criteria for each project and a summary of impacts for each alternative are provided at the end of this chapter.

## **2.1 IDENTIFICATION OF SELECTION CRITERIA**

The Buckley AFB General Plan was published in November 2002. The plan provided an overall blueprint for the transition from an Air National Guard facility to a fully functioning, active-duty AFB with many tenant organizations. The plan advocated grouping similar facilities together, and antiterrorism constraints dictated siting some facilities a specified distance from the fence line.

The following are selection criteria developed to satisfy the purpose and need for the proposed action. Alternatives were developed based on how effectively they meet the selection criteria for each project.

### **2.1.1 Small Arms Range Complex**

Selection criteria for this project include the following:

1. Meets current Air Force operational, safety, and training standards, including Engineering Technical Letter, 05-5, *Small Arms Range Design and Construction* and Section 6.4.3. Category Code 171-475, Indoor Small Arms Range, of Air Force Handbook 32-1084, Facilities Requirements.
2. Supports the mission of maintaining personnel qualification standards for the 460th SW and its tenant organizations.
3. Allows for firing or qualifying on M60 and/or grenade equipment on-installation.
4. Incorporates combined arms training and maintenance.
5. Does not adversely impact future industrial/research and development uses at the installation perimeter.
6. Is not located in the Airfield Primary Surface.
7. Meets the land use criteria established in the Buckley AFB General Plan.
8. Avoids floodplains, wetlands, natural and cultural resources, and sites requiring environmental investigation and/or remediation.

### **2.1.2 Logistics Readiness Complex**

Selection criteria for this project include the following:

1. Increases efficiency by consolidating Logistics Operations in one location.
2. Meets current fire safety codes, building codes, and energy conservation standards.
3. Provides an adequate facility per Air Force Handbook 32-1084, Facilities Requirements, to meet 460th SW mission requirements to provide training, storage, and processing areas to support the materiel handling for the deployment mission.
4. Meets the minimum Antiterrorism/Force Protection standards.
5. Is not located in the Airfield Clear Zone.

6. Meets the land use criteria established in the Buckley AFB General Plan.
7. Avoids floodplains, wetlands, natural and cultural resources, and sites requiring environmental investigation and/or remediation.

### **2.1.3 Consolidated Services Facility**

Selection criteria for this project include the following:

1. Consolidates services functions (Services Director and staff, Community Support Flight, Combat Support Flight, Resources Flight, Human Resources, Marketing/Sponsorship, Food Services staff, Mortuary/Search and Rescue, the Honor Guard, unit Control Center, and Information Ticket Tours (ITT) offices and sales) that are currently scattered around the base into a single location for Buckley AFB personnel to conduct business.
2. Meets the land use criteria established in the Buckley AFB General Plan.
3. Avoids floodplains, wetlands, natural and cultural resources, and sites requiring environmental investigation and/or remediation.

### **2.1.4 Communications Center**

Selection criteria for this project include the following:

1. Accommodates updated telecommunications equipment needed to support the new mission at Buckley AFB, in accordance with Section 4.2. Category Code 131-111, Telecommunications Facility, in Air Force Handbook 32-1084, Facility Requirements.
2. Consolidates equipment and personnel in one location.
3. Is not located in the Airfield Clear Zone.
4. Meets the land use criteria established in the Buckley AFB General Plan.
5. Avoids floodplains, wetlands, natural and cultural resources, and sites requiring environmental investigation and/or remediation.

## **2.2 DESCRIPTION OF THE PROPOSED ACTION**

The USAF proposes to implement the Capital Improvements Program (CIP) to provide adequate facilities as described below for the Small Arms Range Complex, Logistics Readiness Complex, Consolidated Services Facility, and the Communications Center.

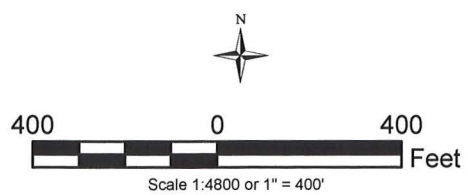
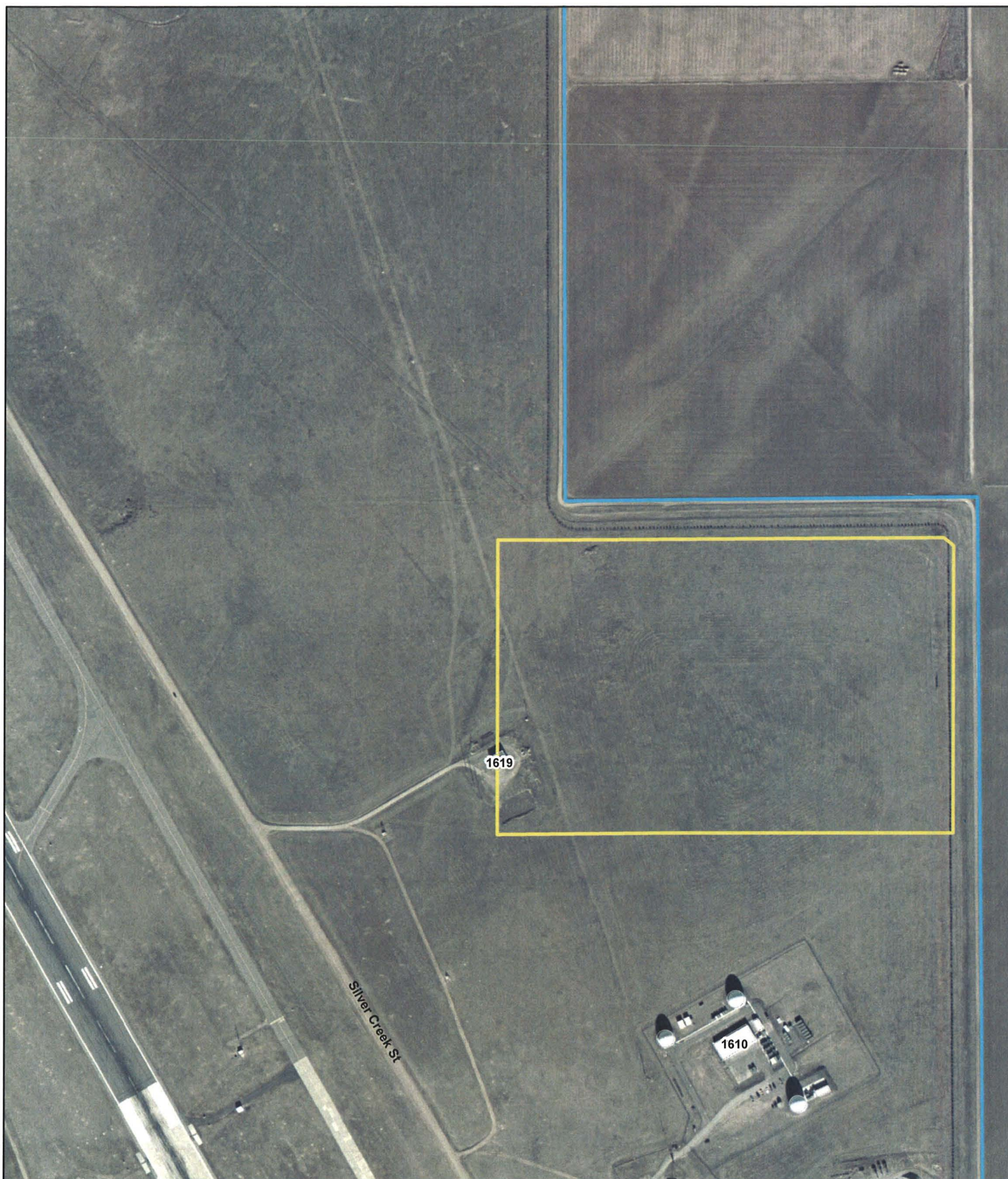
### **2.2.1 Small Arms Range Complex**

The new Small Arms Range Complex would consist of:

- an indoor firing range facility with a 21-position-firing area for small arms non-lead rounds and a separate two-position M60 firing area for lead-containing rounds,
- an outdoor grenade training area, and
- a CATM building.

The proposed site is located northeast of Runway 14/32 on the eastern side of Silver Creek Street, north of Buildings 1620, 1631, and 1632 (Figure 2-1). The proposed complex would consist of an





**Figure 2-1** General Location of the Proposed Small Arms Range Complex

*BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AIR FORCE BASE - COLORADO*

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approximately 9,785-square-foot (ft<sup>2</sup>) (909-square-meter [m<sup>2</sup>]) CATM facility immediately adjacent to an approximately 23,735- ft<sup>2</sup> (2,205 m<sup>2</sup>) fully contained, enclosed firing range. An outdoor grenade launcher range and parking area for approximately 52 vehicles would also be included in the complex. The CATM building for the range would include classrooms, weapons storage, weapons maintenance, and administrative areas. The CATM building would house up to eight staff, and as many as 50 students per session may use the facility. The provision of buffer areas is also available to support parking, circulation, and force protection setbacks. Figure 2-2 shows a conceptual drawing of what the Small Arms Range might look like.

The proposed site is isolated from utilities. The entire complex would require stand-alone systems for water, sewer, and fire protection. Telecommunication and natural gas utilities would need to be brought into the site; electricity was brought to the area by a separate project in FY04.

The indoor firing range facility would provide additional safety measures to capture ricochets, which is mandated by the relatively limited space available for such a facility. The proposed site is in close proximity to the installation boundary. Requirements for noise abatement at the installation boundary caused the range to be a fully enclosed facility. The requirement to accommodate heavy machine gun operations further enforced the need for the range to be fully enclosed for noise and safety zone clearances. An indoor range does not require a safety distance zone, which is required for any non-fully contained range, thus providing location flexibility for this range.

Security Forces, in conjunction with Civil Engineering, has identified the requirement to provide a range that would support the following weapons: 9-millimeter (mm) pistol, M11 pistol, M16A2 rifle, M870 shotgun, Uzi submachine gun, and M240 and M249 machine guns. The two-position M60 machine gun facility would be fully separated from the 21-position range due to the use of lead-containing munitions and the additional noise protection required for machine gun firing. An area is required outside the confines of the indoor range to support the M203 grenade launcher utilizing inert grenades. Only training munitions (i.e., no live munitions) would be used in this area, thereby alleviating the need for a large safety distance zone.

Double, oversized doors would be provided for maintenance equipment and training, which may involve vehicle movements. Heat and ventilation would be provided on the firing line and impact area, with a negative pressure in the indoor firing range area created by exhaust at the impact and firing areas.

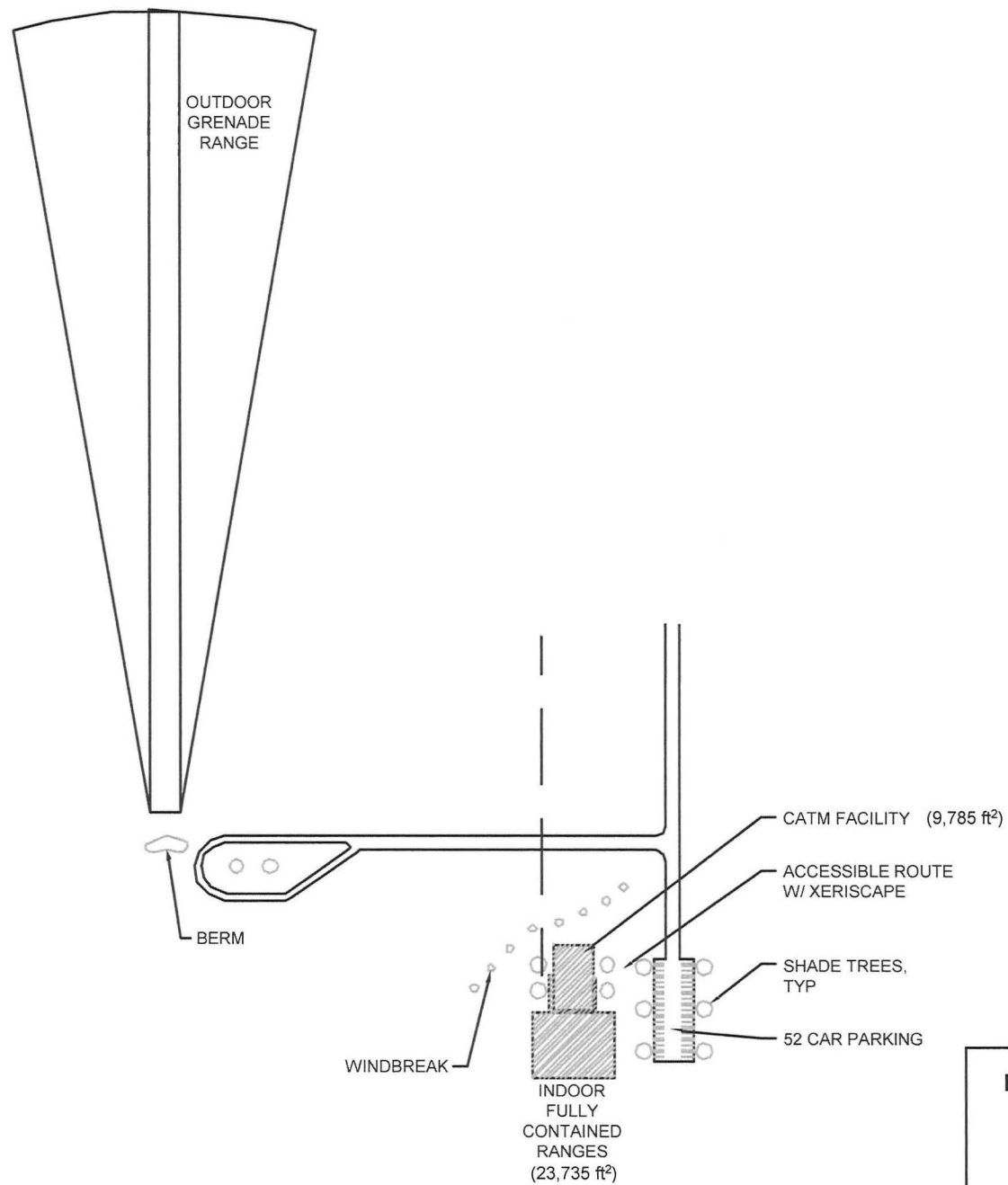
The Range Tower in the indoor firing range would be located far enough back from the firing line to be able to see all shooters, and the Ready Area would be sufficiently behind the firing line so as not to interfere with the Range Master's view. Line-of-sight studies would be required. A public address system from the existing firing range would be relocated to the new facility.

Sound attenuation would be given consideration in both ranges near the firing line and in the indoor firing range itself. Baffling would abate noise. Sound separation from the CATM facility would also be incorporated into the design.

The CATM facility would house the bulk of the support functions for the Small Arms Range Complex. The administrative storage area would be adjacent to the administrative area that controls the main entry, and classrooms would have audiovisual and demonstration equipment storage areas. Also, the CATM building would provide for storage of an all-purpose vehicle.

Weapons maintenance and storage could be combined in one secure armory area. Ammunition could also be stored in the armory if it is properly stored and separated. A weapons and ammunition vault would be provided of sufficient size to store and maintain the required range supplies and materials. The students' weapon cleaning area would be nearby in a separate area.

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**Figure 2-2** Small Arms Range  
Conceptual Drawing

*BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AIR FORCE BASE - COLORADO*



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The CATM facility would be fully fire detected and protected. The indoor firing range area would not have sprinklers, but would be fire detected with rate-of-rise devices not susceptible to false alarms from weapon discharge.

The grenade launcher range would be a large, open, cordoned-off area with proper signage. A good clear view downrange is desirable for seeing targets. The topography of the area selected affords such a view with an adequately raised spotter's tower. A berm behind the target area and telephone poles, laid perpendicular to the range on the firing line, would provide two prone and two kneeling positions (Buckley AFB, 2004b).

### **2.2.2 Logistics Readiness Complex**

The new Logistics Readiness Complex would provide training and administration space in addition to the area for storing, issuing, and maintaining readiness materiel for the 460th SW. The facility would include:

- administrative office space,
- conference/training room,
- deployment control center,
- mobility processing area,
- mobility bag storage area,
- weapons storage,
- hazardous materials storage,
- shop area, and a
- traffic management office.

The proposed site for the new Logistics Readiness Complex is east of Aspen Street, northwest of Building 1005 Civil Engineering (Figure 2-3). A new road running east of Aspen Street would be built to provide access for delivery vehicles to the new facility. A main entrance facing southwest would be constructed to accommodate staff and visitors at the Logistics Readiness Complex.

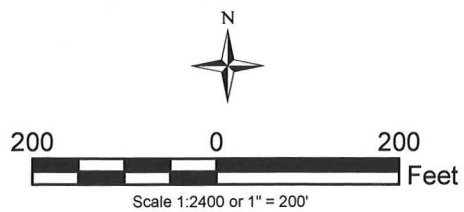
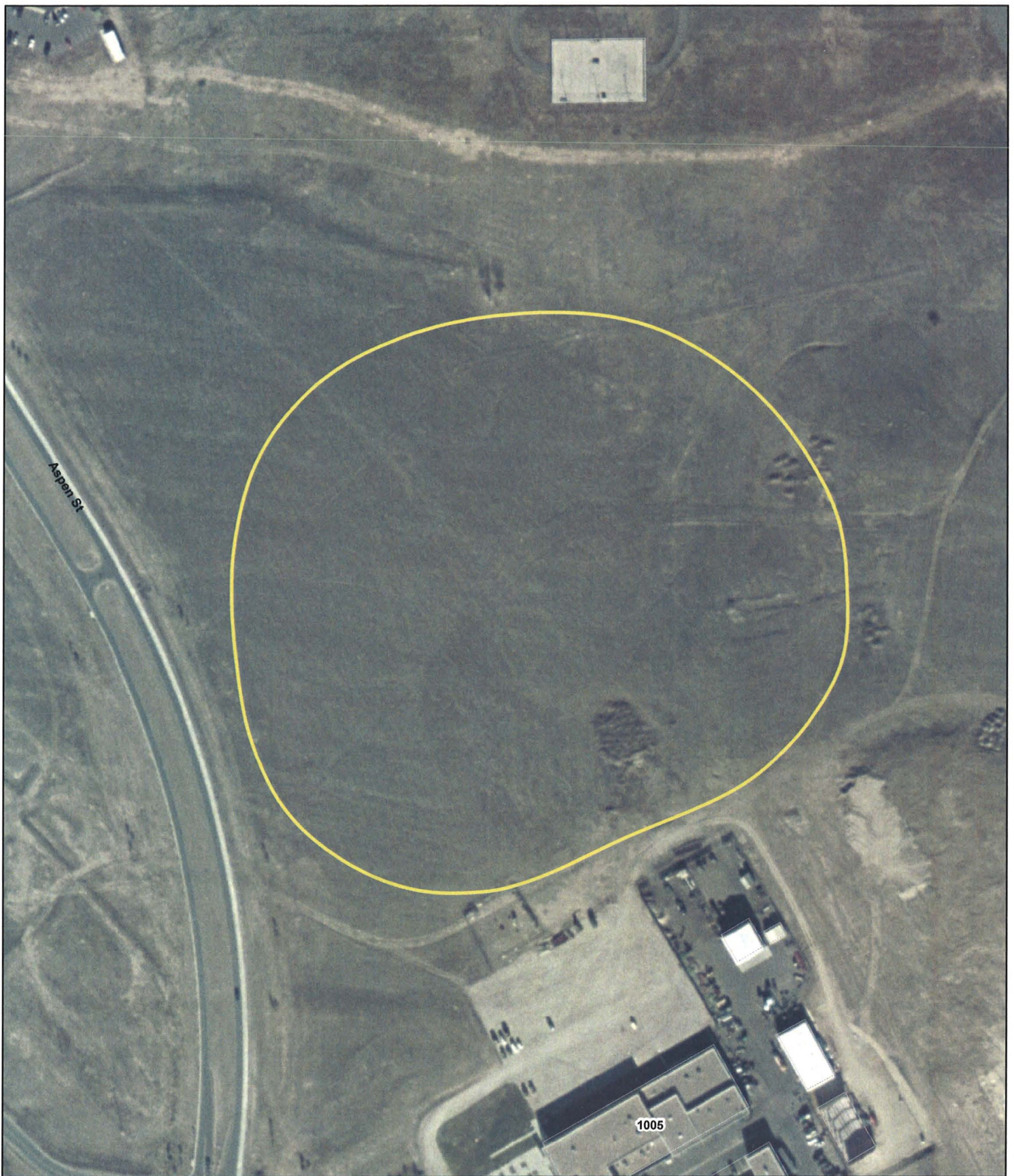
This project would include constructing an approximately 24,650- ft<sup>2</sup> (2,290-m<sup>2</sup>), 25-ft (7.6-meter [m]) floor-to-ceiling (high-bay) warehouse with an adjacent single-story area for administrative functions. The facility would be constructed to comply with the expansive soil requirements of the base. The facility would have a large high-bay warehouse area for processing and storing deployment equipment. Figure 2-4 shows the conceptual drawing of what the facility might look like.

The Logistics Readiness Complex would house approximately 37 to 42 people. During a deployment exercise, there may be more than 70 people in the building at one time. A paved parking lot with 17 spaces for the Logistics vehicle fleet and additional parking for 31 vehicles, including two handicapped spaces in accordance with the Americans with Disabilities Act (ADA), would be built (Buckley AFB, 2004c). Existing utilities run along the east side of Aspen Street. Approximately 500 linear feet (ft) (152 m) each of new water lines; sanitary sewer tie-ins; stormwater collection and control components (including underground features); gas lines; and electrical service would be provided to the facility.

Weapons storage would be contained in a Class 4 10-ft-wide by 10-ft-deep by 10-ft-high (3 m x 3 m x 3 m) independent manufactured vault. There would not be any ammunition storage in this facility. The conference/training room would include secure access and all walls would have sound suppression.

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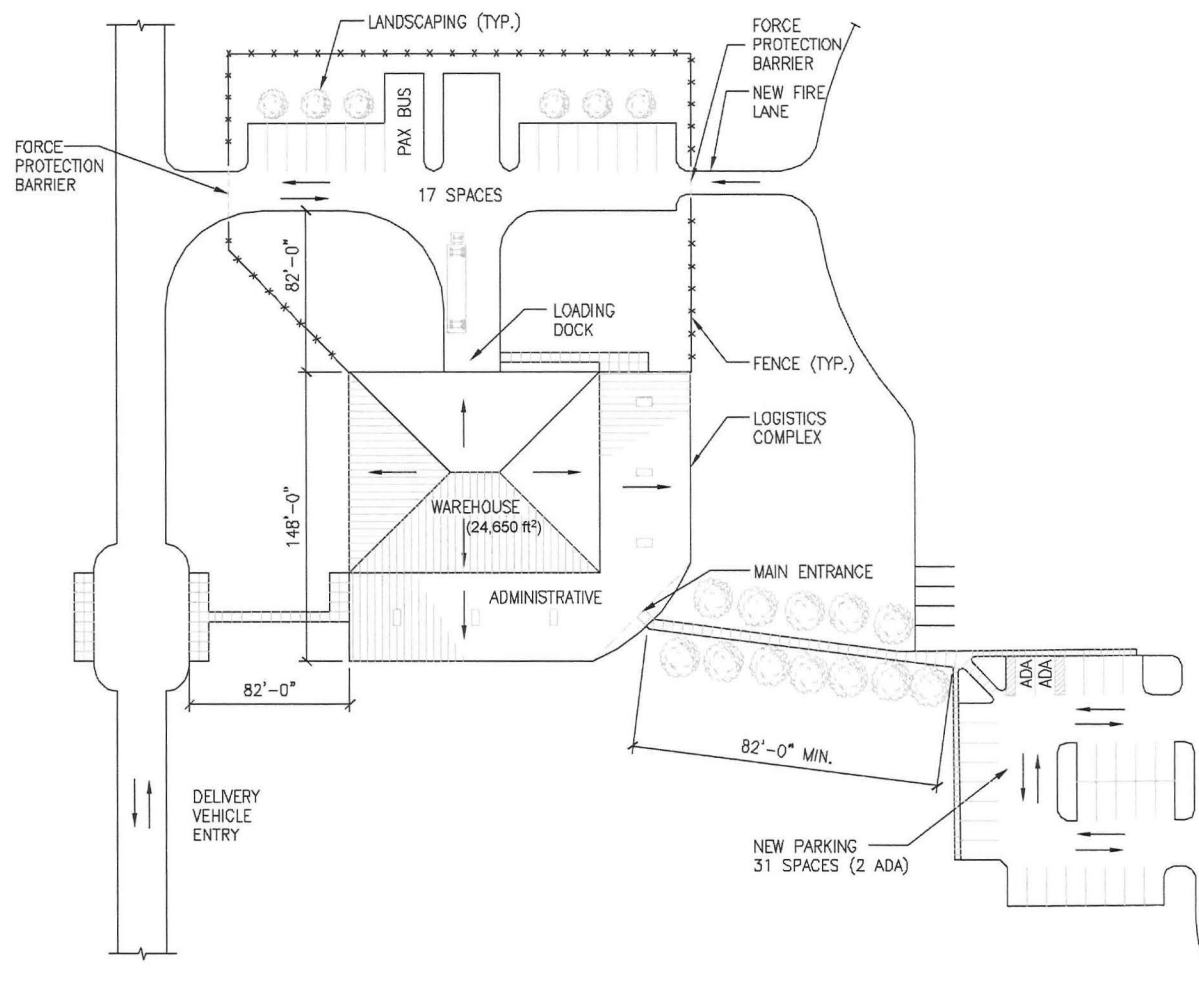


**Figure 2-3** General Location of the Proposed Logistics Readiness Complex

*BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AIR FORCE BASE - COLORADO*

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**Figure 2-4** Logistics Readiness Complex  
Conceptual Drawing

BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AIR FORCE BASE - COLORADO



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A two-workstation Sensitive Compartmented Information Facility area is included for the Logistics Plans Office and would have security access and sound suppression.

There would be a temporary vehicle dispatch office within the facility until a new vehicle maintenance shop is completed. Instead of dedicating space inside the Logistics Readiness Complex, Buckley AFB personnel may also consider locating a temporary trailer outside the facility for dispatch. The warehouse area would include space to park and charge forklifts and a loading dock for loading and unloading equipment and materials. The shop area would have dust collection ports and compressed air.

### **2.2.3 Consolidated Services Facility**

The new Consolidated Services Facility would provide a single location for Buckley AFB personnel to conduct business with the Services functions that are currently scattered on the base. These functions include:

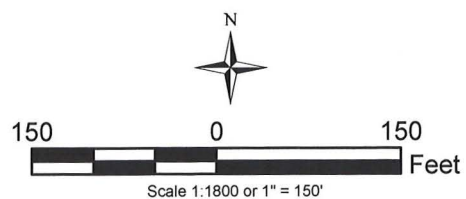
- Services Director and staff,
- Community Support Flight,
- Combat Support Flight,
- Resources Flight,
- Human Resources,
- Marketing/Sponsorship,
- Food Services staff,
- Mortuary/Search and Rescue,
- Honor Guard,
- Unit Control Center, and
- ITT offices and sales.

This project would construct an approximately 14,101 ft<sup>2</sup> (1,310-m<sup>2</sup>), single-story steel frame building in compliance with expansive soil requirements. The proposed site is located south of Breckenridge Avenue and west of Building 606 (Figure 2-5). There are utilities close by. Approximately 300 linear ft (91 m) of water lines would be needed to connect with the pipe located on the west side of Aspen Street and along the south side of Breckenridge Avenue; approximately 500 linear ft (152 m) would be needed to connect with electric power from the existing lines that parallel A-Basin Avenue and run to the center of the site. The natural gas connection to the new facility would require approximately 400 linear ft (122 m) to connect with a pipe running along the east side of Aspen Street, parallel to A-Basin Avenue and north of Breckenridge Avenue. An 8-inch (20 cm) sanitary sewer line runs through the middle of the site flowing south to an east-west line near A-Basin Avenue and approximately 500 linear ft (152 m) of new line would be needed to tie in. The existing storm water system is an open ditch with culverts along Breckenridge and A-Basin avenues.

The new Consolidated Services Facility would provide administrative office space, a conference room accommodating 50 people, a break room, a locker and changing area for the Honor Guard, storage spaces, a sales area for ITT, a secured construction cashier cage, a computer room, an equipment room, building support spaces, and a paved parking lot to accommodate 82 (70 standard and 12 pick-up) vehicle parking spaces and four handicapped spaces (Buckley AFB, 2004d). Figure 2-6 is a conceptual drawing of the Consolidated Services Facility.

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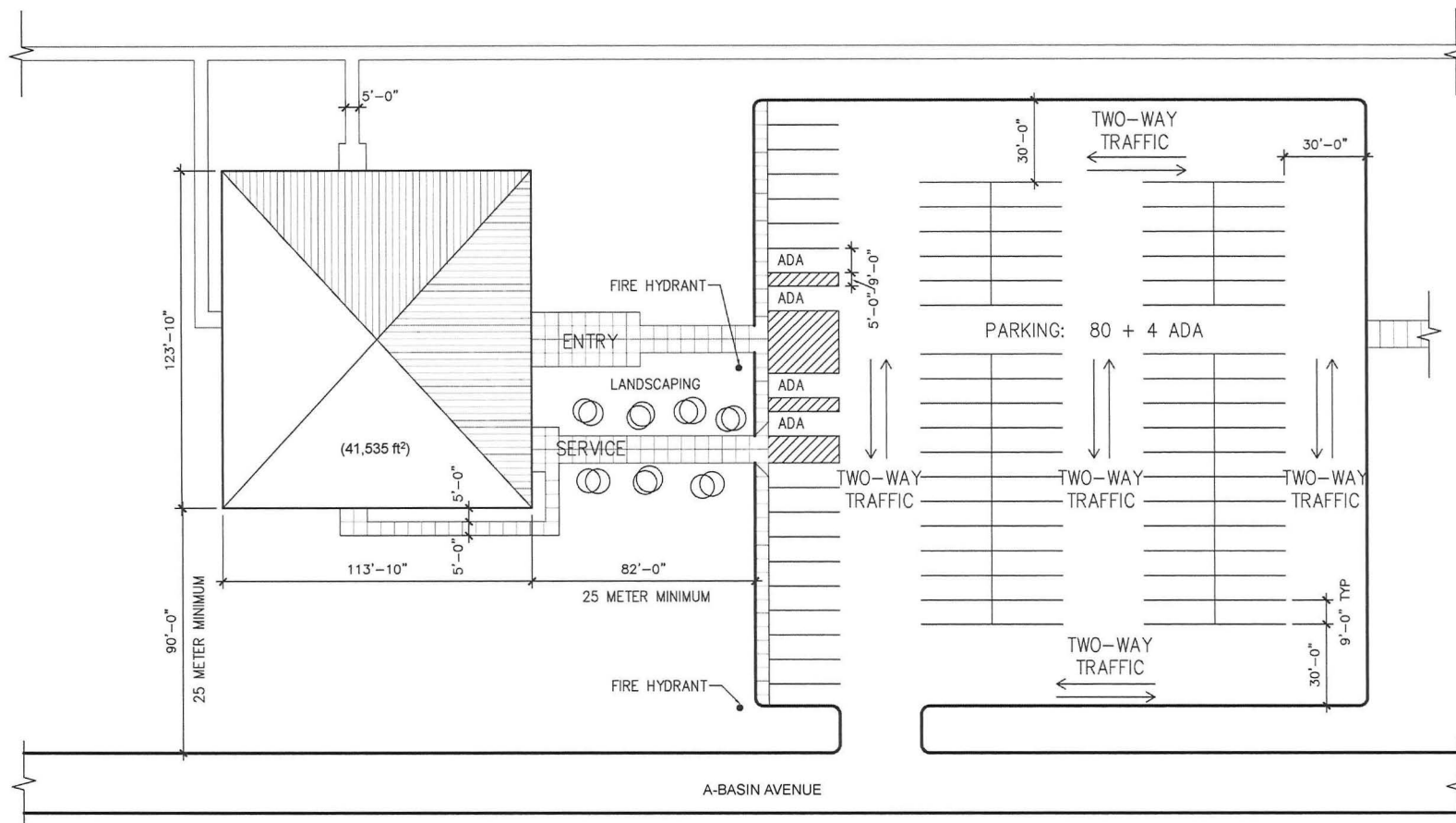


**Figure 2-5** General Location of the Proposed Consolidated Services Facility

BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AIR FORCE BASE - COLORADO

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**Figure 2-6** Consolidated Services Facility  
Conceptual Drawing

BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AIR FORCE BASE - COLORADO



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### **2.2.4 Communications Center**

The new Communications Center would provide a single location that would include:

- administrative offices,
- information management space and offices,
- expanded base telephone operations,
- additional telephone maintenance,
- telecommunications equipment control,
- base network control center,
- technical control center, and an
- information assurance center.

This project would involve construction of a one-story, approximately 37,738 ft<sup>2</sup> (3,506 m<sup>2</sup>) addition to the existing Communications Center in Building 730 on the northeast corner of Aspen Street and Devil's Thumb Avenue (Figure 2-7) to house updated network and secure communication functions and the 120 personnel who are currently located in Building 950. The addition would include a basement with a reinforced concrete foundation. Because the proposed project is an addition and alteration to an existing building, increased utility capacity and additional parking would need to be provided. In addition, the building would have a back-up diesel generator and wiring for telecommunications and network use.

## **2.3 DESCRIPTION OF OTHER ACTION ALTERNATIVES**

For each of the four proposed construction projects, two alternative sites were selected for evaluation in this EA (Figure 1-2). While the conceptual drawings for what each facility might look like and the description of the kinds of activities that would occur within the facility would remain the same, the alternatives are located at different sites across the base that meet the facilities siting criteria detailed in the Buckley AFB General Plan (Buckley AFB 2002) and the selection criteria in Section 2.1 of this EA.

### **2.3.1 Small Arms Range Complex**

#### **2.3.1.1 Alternative 1**

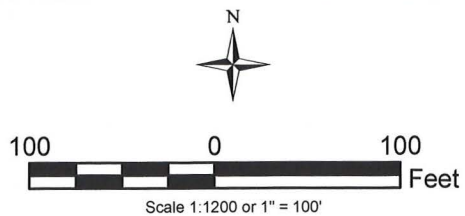
Alternative 1 (Figure 2-8) is a vacant parcel of land located just north and west of the proposed site, which is along the eastern installation boundary line northeast of Runway 14/32 on the eastern side of Silver Creek Street, north of Buildings 1620, 1631, and 1632. As with the proposed site, the entire complex would require stand-alone systems for water, sewer, and fire protection. Telecommunication and natural gas utilities would need to be brought into the site; electricity was brought to the area by a separate project in FY04.



Figure 2-8  
Site of Small Arms Range Complex Alternative 1

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**Figure 2-7** General Location of the Proposed Communications Center

*BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AIR FORCE BASE - COLORADO*

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**2.3.1.2 Alternative 2**

Alternative 2 (Figure 2-9) is a vacant parcel of land located west of the runway on the southwest side of Sunlight Way. As with the proposed site, the entire complex would require stand-alone systems for water, sewer, and fire protection. Depending on the final footprint, utilities may need to be extended to the site.

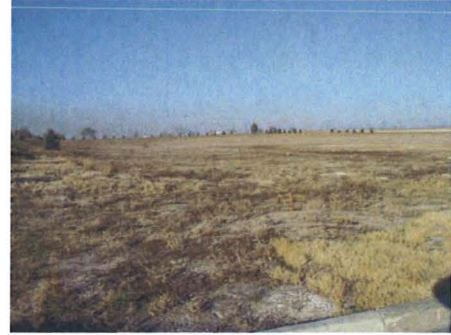


Figure 2-9  
Site of Small Arms Range Complex Alternative 2

**2.3.2 Logistics Readiness Complex****2.3.2.1 Alternative 1**

Alternative 1 (Figure 2-10) is a vacant parcel of land on the northeast side of Sunlight Way, south of Building 1005. Utilities exist within the Alternative 1 location area and would need to be distributed to the new facility.



Figure 2-10  
Site of Logistics Readiness Complex Alternative 1

**2.3.2.2 Alternative 2**

Alternative 2 (Figure 2-11) is a vacant parcel of land located west of Aspen Way and southwest of the new Wing headquarters Building 606. Utilities are not present within the vicinity of the Alternative 2 location and would need to be distributed into the area (Buckley AFB 2002).



Figure 2-11  
Site of Logistics Readiness Complex Alternative 2  
and Consolidated Services Facility Alternative 1

**2.3.3 Consolidated Services Facility****2.3.3.1 Alternative 1**

Alternative 1 (Figure 2-11) is the same site as Alternative 2 for the Logistics Readiness Complex. Utilities are not present within the vicinity of the Alternative 1 location and would need to be distributed into the area (Buckley AFB 2002).

**2.3.3.2 Alternative 2**

Alternative 2 (Figure 2-12) is a vacant parcel of land east of Aspen Street, north of the proposed site for the Logistics Readiness Complex, and southeast of the existing fire station. Utilities for Alternative 2 would be provided to the facility from the existing utilities along Aspen Street.

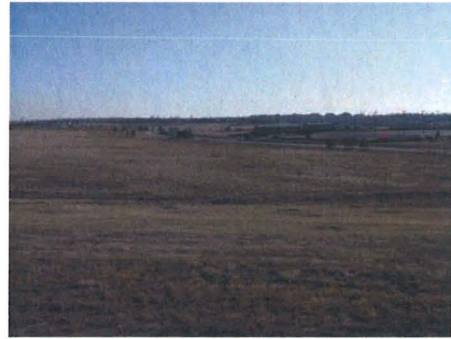


Figure 2-12  
Site of Consolidated Service Facility Alternative 2

**2.3.4 Communications Center****2.3.4.1 Alternative 1**

Alternative 1 (Figure 2-13) is a vacant parcel of land located west of Aspen Street and south of Beaver Creek Street near Building 600, the Medical Facility. Water lines, electrical lines, and natural gas lines exist within the area; however, no sanitary sewer lines are within the area.



Figure 2-13  
Site of Communications Center Alternative 1

**2.3.4.2 Alternative 2**

The existing Communications Center in Building 730 on the northeast corner of Aspen Street and Devil's Thumb Avenue would be demolished and a new building would be constructed at the same location for Alternative 2 (Figure 2-14). Utilities would be the same as in the existing building.



Figure 2-14  
Site of Communications Center Proposed and Alternative 2

## **2.4 NO ACTION ALTERNATIVE**

While the No Action Alternative does not satisfy the purpose and need for the four projects, it is included in the environmental analysis to provide a baseline for comparison with the proposed action and is analyzed in accordance with CEQ regulations for implementing NEPA.

### **2.4.1 Small Arms Range Complex**

Under the No Action Alternative, the Small Arms Range Complex would not be built. The existing outdoor range would continue to deteriorate and would not meet current Air Force operational and safety standards. Because there would still not be a capability for firing or qualifying on M60 or grenade equipment or for providing CATM, these heavier arms would continue to require secure transport, and trainees would need to continue traveling to Fort Carson, Colorado, for training exercises. In addition, the existing firing range is in the footprint of another proposed project, the Air National Guard's high-speed taxiway. The No Action Alternative would not support the expanding missions at Buckley AFB and does not meet the project purpose and need.

### **2.4.2 Logistics Readiness Complex**

Under the No Action Alternative, the new facility would not be built. The existing facility would be unable to handle the added 1,000 military staff at the installation and would not meet current fire safety codes, building codes, and energy conservation standards. Because the existing facility is located within the clear zone of the runway, it would continue to operate under airfield safety waivers. Additionally, the current facility would still not meet the minimum Antiterrorism/Force Protection standards. The No Action Alternative would not support the expanding missions at Buckley AFB and does not meet the project purpose and need.

### **2.4.3 Consolidated Services Facility**

Under the No Action Alternative, the Consolidated Services Facility would not be built. The service organizations for Marketing, Human Resources, Food Services, Combat Support, and the Honor Guard, as well as the Services Director and a cashier cage, would remain scattered across the installation in temporary buildings. Because some of the temporary buildings are scheduled for removal in FY 2007, some of these service organizations would have to relocate and currently no space is available for their relocation. The No Action Alternative would not support the expanding missions at Buckley AFB and does not meet the project purpose and need.

### **2.4.4 Communications Center**

Under the No Action Alternative, the Communications Center would not be built. If a new Communications Center is not provided, the existing telecommunications capacities would not support future planned requirements for the new active-duty Space Wing (SW). Essential communications services to support the mission and the community would not occur. Voice and data communication service for new facilities and operations would be severely limited and inadequate. The network control center, secure communications, and information assurance functions would remain in temporary facilities at risk of information disruption or compromise, and would present an obstruction risk to aircraft. Additionally, 120 personnel would remain in temporary space in Building 950, separated from the main communications facility in Building 730. Building 950 lies within the clear zone. The No Action

Alternative would not support the expanding missions at Buckley AFB and does not meet the project purpose and need.

## **2.5 ALTERNATIVES CONSIDERED BUT DISMISSED**

### **2.5.1 Small Arms Range Complex**

Several different locations were considered for the Small Arms Range Complex. One site was near the existing skeet range, but there was insufficient space to accommodate the entire facility, especially the outdoor grenade range. Another potential location northeast of the proposed site and adjacent to the eastern fence line was selected for the fire-training center and was no longer available.

An alternative using an outdoor range was also considered but eliminated from further consideration because the footprint of an outdoor facility would be several square miles, which is not available at Buckley AFB. Locations off base were eliminated from consideration because off-base training requires the transport of weapons and staff, and this transport and its associated security are a time-consuming and expensive alternative to an on-site facility.

### **2.5.2 Logistics Readiness Complex**

Other locations for the Logistics Readiness Complex were investigated during the development of the Buckley AFB General Plan. These locations had to accommodate other planned facility locations and avoid clear zones and natural resource constraints. The locations eliminated from consideration were either already planned for other development, were in areas not suitable for development (wetlands, floodplains, Environmental Restoration Program [ERP] sites), or were not large enough to accommodate all logistics operations in one location. Locations off base would not meet the purpose and need for this facility.

### **2.5.3 Consolidated Services Facility**

Other locations for the Consolidated Services Facility were investigated during the development of the Buckley AFB General Plan. The location of the Consolidated Services Facility was constrained by natural features, locations of nearby ERP sites, and the need to have this facility located in or near the planned Community Center, since its functions relate directly to the needs of the Community Center. Other locations within the Community Center were not available, as they were already planned for other required facilities. Locations off base would not meet the purpose and need for the facility.

### **2.5.4 Communications Center**

During the planning process, it was determined that expanding the existing Communications Center in Building 850 was not possible as it is an Air National Guard facility; expanding Building 950 is not feasible as it is in the clear zone of the flightline and must be demolished; and that locations off base would not meet the purpose and need for this facility.

## **2.6 COMPARISON OF ALTERNATIVES**

Table 2-1 illustrates the proposed action, other action alternatives, and the No Action Alternative as they relate to the selection criteria presented in Section 2.1.



## SECTION TWO

## Description of Proposed Action and Alternatives

**Table 2-1. Comparison of Alternatives with Selection Criteria**

Selection Criteria	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
<b><i>Small Arms Range Complex</i></b>				
Meets current Air Force operational, safety, and training standards	YES	YES	YES	NO
Supports the mission of maintaining personnel qualification standards for the 460th SW and its tenant organizations	YES	YES	YES	NO
Allows for firing or qualifying on M60 or grenade equipment on-installation	YES	YES	YES	NO
Incorporates CATM	YES	YES	YES	NO
Does not adversely impact future industrial/research and development uses at the installation perimeter	YES	YES	YES	YES
Is not located in the Airfield Clear Zone	YES	YES	YES	NO
Meets the land use criteria established in the Buckley AFB General Plan	YES	YES	NO	NO
Avoids major impacts to floodplains, wetlands, natural or cultural resources, and sites requiring environmental investigation and/or remediation.	YES	YES	YES	YES
<b><i>Logistics Readiness Complex</i></b>				
Increases efficiency by consolidating Logistics Operations in one location	YES	YES	YES	NO
Meets current fire safety and building codes and energy conservation standards	YES	YES	YES	NO
Provides an adequate facility to meet 460th SW mission requirements to provide training, storage, and processing areas to support the material handling areas for the deployment mission	YES	YES	YES	NO
Meets the minimum Antiterrorism/Force Protection standards	YES	YES	YES	NO
Is not located in the Airfield Clear Zone	YES	YES	YES	NO
Meets the land use criteria established in the Buckley AFB General Plan	YES	NO	NO	NO
Avoids major impacts to floodplains, wetlands, natural or cultural resources, and sites requiring environmental investigation and/or remediation.	YES	YES	YES	YES
<b><i>Consolidated Services Facility</i></b>				
Consolidates services functions (Services Director and staff, Community Support Flight, Combat Support Flight, Resources Flight, Human Resources, Marketing/Sponsorship, Food Services staff, Mortuary/Search and Rescue, the Honor Guard, unit Control Center, and ITT offices and sales) that are currently scattered around the base into a single location for Buckley AFB personnel to conduct business	YES	YES	YES	NO
Meets the land use criteria established in the Buckley AFB General Plan	YES	NO	NO	NO

## SECTION TWO

## Description of Proposed Action and Alternatives

**Table 2-1. Comparison of Alternatives with Selection Criteria**

Selection Criteria	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Avoids major impacts to floodplains, wetlands, natural or cultural resources, and sites requiring environmental investigation and/or remediation.	YES	YES	YES	YES
<b><i>Communications Center</i></b>				
Accommodates updated telecommunications equipment needed to support the new mission at Buckley AFB	YES	YES	YES	NO
Consolidates equipment and personnel in one location	YES	YES	YES	NO
Is not located in the Airfield Clear Zone	YES	YES	YES	NO
Meets the land use criteria established in the Buckley AFB General Plan	YES	NO	YES	NO
Avoids major impacts to floodplains, wetlands, natural or cultural resources, and sites requiring environmental investigation and/or remediation.	YES	YES	YES	YES

Table 2-2 compares the impacts to resources analyzed in this EA for the proposed action, Alternatives 1 and 2, and the No Action Alternative for each of these projects.

**Table 2-2. Comparison of Alternatives with Resource Impacts**

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
<b><i>Small Arms Range Complex</i></b>				
Land Use	Negligible adverse impacts because proposed conversion of open space to industrial purposes conforms with the Base Plan.	Negligible adverse impacts because proposed conversion of open space to industrial purposes conforms with the Base Plan.	Adverse impacts to land use are expected because proposed land use changes do not conform with the Base Plan.	No impacts expected.
Socioeconomics	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.
Air Quality	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	No impacts expected.
Noise	Negligible short-term impacts due to construction activities.	Negligible short-term impacts due to construction activities.	Negligible short-term impacts due to construction activities.	No impacts expected.
Soils	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	No impacts expected.
Water Resources	Negligible long-term	Negligible long-term	Negligible long-term	No impacts



**Table 2-2. Comparison of Alternatives with Resource Impacts**

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	adverse impacts to surface water due to increase in impervious surface.	adverse impacts to surface water due to increase in impervious surface.	adverse impacts to surface water due to increase in impervious surface.	expected.
<b>Biological Resources</b>				
Vegetation	Moderate, direct, and long-term adverse impacts from construction, including the loss of approximately 1.13 acres of vegetation.	Moderate, direct, and long-term adverse impacts from construction, including the loss of approximately 1.13 acres of vegetation.	Moderate, direct, and long-term adverse impacts from construction, including the loss of approximately 1.13 acres of vegetation.	No impacts expected.
Wetlands	No impacts expected.	No impacts expected.	No impacts expected.	No impacts expected.
Wildlife	Minor, direct, short- and long-term impacts due to construction activities. Indirect and long-term impacts from operation.	Minor, direct, short- and long-term impacts due to construction activities. Indirect and long-term impacts from operation.	Minor, direct, short- and long-term impacts due to construction activities. Indirect and long-term impacts from operation.	No impacts expected.
Threatened, Endangered, and Other Sensitive Species	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.13 acres of potential habitat.	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.13 acres of potential habitat.	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.13 acres of potential habitat.	No impacts expected.
Hazardous Materials and Waste	Potential long-term adverse impact from radon in the soil; otherwise, no hazardous materials or waste impacts are expected.	Potential long-term adverse impact from radon in the soil; otherwise, no hazardous materials or waste impacts are expected.	Potential long-term adverse impact from radon in the soil; otherwise, no hazardous materials or waste impacts are expected.	No impacts expected.
Solid Waste and Pollution Prevention	Negligible short-term impacts due to solid waste generation during construction activities.	Negligible short-term impacts due to solid waste generation during construction activities.	Negligible short-term impacts due to solid waste generation during construction activities.	No impacts expected.
Transportation	Negligible, long-term, adverse impacts due to changing traffic patterns, capacity, and volume.	Negligible, long-term, adverse impacts due to changing traffic patterns, capacity, and volume.	Negligible, long-term, adverse impacts due to changing traffic patterns, capacity, and volume.	No impacts expected.
Utilities	No adverse impacts anticipated.	No adverse impacts anticipated.	No adverse impacts anticipated.	No impacts expected.
Environmental Justice	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.
<b>Logistics Readiness Complex</b>				
Land Use	Negligible adverse impacts because	Adverse impacts to land use are expected because	Adverse impacts to land use are expected because	No impacts expected.

**Table 2-2. Comparison of Alternatives with Resource Impacts**

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	proposed conversion of open space to industrial purposes conforms with the Base Plan.	proposed land use changes do not conform with the Base Plan.	proposed land use changes do not conform with the Base Plan.	
Socioeconomics	No adverse impacts expected	No adverse impacts expected	No adverse impacts expected	No adverse impacts expected
Air Quality	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	No impacts expected.
Noise	Negligible short-term impacts due to construction activities.	Negligible short-term impacts due to construction activities.	Negligible short-term impacts due to construction activities.	No impacts expected.
Soils	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	No impacts expected.
Water Resources	Negligible, long-term, adverse impacts to surface water due to increase in impervious surface.	Negligible, long-term, adverse impacts to surface water due to increase in impervious surface.	Negligible, long-term, adverse impacts to surface water due to increase in impervious surface.	No impacts expected.
<b>Biological Resources</b>				
Vegetation	Minor, direct, and long-term adverse impacts from construction, including the loss of approximately 0.9 acre of vegetation.	Minor, direct, and long-term adverse impacts from construction, including the loss of approximately 0.9 acre of vegetation.	Minor, direct, and long-term adverse impacts from construction, including the loss of approximately 0.9 acre of vegetation.	No impacts expected.
Wetlands	No impacts expected.	No impacts expected.	Minor, indirect, and short-term adverse impacts from construction.	No impacts expected.
Wildlife	Minor, direct, short- and long-term impacts from construction.	Minor, direct, short- and long-term impacts from construction.	Minor, direct, short- and long-term impacts from construction.	No impacts expected.
Threatened, Endangered, and Other Sensitive Species	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 0.9 acre of potential habitat.	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 0.9 acre of potential habitat.	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 0.9 acre of potential habitat.	No impacts expected.

**Table 2-2. Comparison of Alternatives with Resource Impacts**

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Hazardous Materials and Waste	Potential long-term adverse impact from radon in the soil; otherwise, no hazardous materials or waste impacts are expected.	Potential long-term adverse impact from radon in the soil; otherwise, no hazardous materials or waste impacts are expected.	Potential long-term adverse impact from radon in the soil; otherwise, no hazardous materials or waste impacts are expected.	No impacts expected.
Solid Waste and Pollution Prevention	Negligible short-term impacts due to solid waste generation during construction activities.	Negligible short-term impacts due to solid waste generation during construction activities.	Negligible short-term impacts due to solid waste generation during construction activities.	No impacts expected.
Transportation	Negligible, long-term, adverse impacts due to changing traffic patterns, capacity, and volume.	Negligible, long-term, adverse impacts due to changing traffic patterns, capacity, and volume.	Negligible, long-term, adverse impacts due to changing traffic patterns, capacity, and volume.	No impacts expected.
Utilities	No adverse impacts anticipated	No adverse impacts anticipated	No adverse impacts anticipated	No impacts expected.
Environmental Justice	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.
<b><i>Consolidated Services Facility</i></b>				
Land Use	Negligible adverse impacts because proposed conversion of open space to administrative purposes conforms with the Base Plan.	Adverse impacts to land use are expected because proposed land use changes do not conform with the Base Plan.	Adverse impacts to land use are expected because proposed land use changes do not conform with the Base Plan.	No impacts expected.
Socioeconomics	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.
Air Quality	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	No impacts expected.
Noise	Negligible short-term impacts due to construction activities.	Negligible short-term impacts due to construction activities.	Negligible short-term impacts due to construction activities.	No impacts expected.
Soils	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	No impacts expected.
Water Resources	Negligible long-term adverse impacts to surface water due to increase in impervious surface.	Negligible long-term adverse impacts to surface water due to increase in impervious surface.	Negligible long-term adverse impacts to surface water due to increase in impervious surface.	No impacts expected.

**Table 2-2. Comparison of Alternatives with Resource Impacts**

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
<b>Biological Resources</b>				
Vegetation	Minor, direct, and long-term adverse impacts from construction, including the loss of approximately 1.5 acres of vegetation.	Minor, direct, and long-term adverse impacts from construction, including the loss of approximately 1.5 acres of vegetation.	Minor, direct, and long-term adverse impacts from construction, including the loss of approximately 1.5 acres of vegetation.	No impacts expected.
Wetlands	No impacts expected.	Minor, indirect, and short-term adverse impacts from construction.	No impacts expected.	No impacts expected.
Wildlife	Minor, direct, short- and long-term impacts from construction.	Minor, direct, short- and long-term impacts from construction.	Minor, direct, short- and long-term impacts from construction.	No impacts expected.
Threatened, Endangered, and Other Sensitive Species	Moderate, direct, long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.5 acres of potential habitat.	Moderate, direct, long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.5 acres of potential habitat.	Moderate, direct, long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.5 acres of potential habitat.	No impacts expected.
Hazardous Materials and Waste	Potential short-and/or long-term impacts due to presence of ACM, radon, ERP Site 4, and residual USTs and piping in soil.	Potential long-term adverse impact from radon in the soil; otherwise, no hazardous materials or waste impacts are expected.	Potential long-term adverse impact from radon in the soil; otherwise, no hazardous materials or waste impacts are expected.	No impacts expected.
Solid Waste and Pollution Prevention	Negligible short-term impacts due to solid waste generation during construction activities.	Negligible short-term impacts due to solid waste generation during construction activities.	Negligible short-term impacts due to solid waste generation during construction activities.	No impacts expected.
Transportation	Negligible long-term adverse impacts due to changing traffic patterns, capacity, and volume.	Negligible long-term adverse impacts due to changing traffic patterns, capacity, and volume.	Negligible long-term adverse impacts due to changing traffic patterns, capacity, and volume.	No impacts expected.
Utilities	No adverse impacts anticipated.	No adverse impacts anticipated.	No adverse impacts anticipated.	No impacts expected.
Environmental Justice	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.
<b>Communications Center</b>				
Land Use	No adverse impacts because there would be no land use change.	Adverse impacts to land use are expected because proposed land use changes do not conform with the Base Plan.	No adverse impacts because there would be no land use change	No impacts expected.

**Table 2-2. Comparison of Alternatives with Resource Impacts**

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Socioeconomics	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.
Air Quality	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	Minor, direct, and short-term impacts from potential dust emissions due to soil removal, site grading and construction, and increased vehicle traffic.	No impacts expected.
Noise	Negligible short-term impacts due to construction activities.	Negligible short-term impacts due to construction activities.	Negligible short-term impacts due to construction activities.	No impacts expected.
Soils	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	Minor, direct, and short-term impacts due to construction activities such as grading, excavating, and recontouring of the soil.	No impacts expected.
Water Resources	Negligible long-term adverse impacts to surface water due to increase in impervious surface.	Negligible long-term adverse impacts to surface water due to increase in impervious surface.	Negligible long-term adverse impacts to surface water due to increase in impervious surface.	No impacts expected.
<b>Biological Resources</b>				
Vegetation	Minor, direct, and short-term adverse impacts from construction, including the loss of approximately 1.42 acres of vegetation.	Minor, direct, and short-term adverse impacts from construction, including the loss of approximately 1.44 acres of vegetation.	Minor, direct, and short-term adverse impacts from construction, including the loss of approximately 1.42 acres of vegetation.	No impacts expected.
Wetlands	No impacts expected.	No impacts expected.	No impacts expected.	No impacts expected.
Wildlife	Minor, direct, short- and long-term impacts from construction.	Minor, direct, short- and long-term impacts from construction.	Minor, direct, short- and long-term impacts from construction.	No impacts expected.
Threatened, Endangered, and Other Sensitive Species	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.42 acres of potential habitat.	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.42 acres of potential habitat.	Moderate, direct long-term impacts to black-tailed prairie dogs. Moderate, direct and indirect, short- and long-term impacts to burrowing owls. This includes the loss of approximately 1.42 acres of potential habitat.	No impacts expected.

## SECTION TWO

## Description of Proposed Action and Alternatives

**Table 2-2. Comparison of Alternatives with Resource Impacts**

Resources	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Hazardous Materials and Waste	Potential short-and/or long-term impacts due to presence of ACM and radon in soil.	Potential long-term adverse impact from radon in the soil; otherwise, no hazardous materials or waste impacts are expected.	Potential short-and/or long-term impacts due to presence of ACM and radon in soil.	No impacts expected.
Solid Waste and Pollution Prevention	Negligible short-term impacts due to solid waste generation during construction activities.	Negligible short-term impacts due to solid waste generation during construction activities.	Negligible short-term impacts due to solid waste generation during construction activities.	No impacts expected.
Transportation	Negligible long-term adverse impacts due to changing traffic patterns, capacity, and volume.	Negligible long-term adverse impacts due to changing traffic patterns, capacity, and volume.	Negligible long-term adverse impacts due to changing traffic patterns, capacity, and volume.	No impacts expected.
Utilities	No adverse impacts anticipated.	No adverse impacts anticipated.	No adverse impacts anticipated.	No impacts expected.
Environmental Justice	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.	No adverse impacts expected.



## **SECTION THREE**      **Affected Environment and Environmental Consequences**

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### **3.1 LAND USE**

This section describes existing land use on the base and presents information pertaining to proposed projects and their impact or change, if any, on land use.

#### **3.1.1 Affected Environment**

Buckley AFB occupies approximately 3,283 acres (1,328 hectares) adjacent to the city of Aurora, Arapahoe County, Colorado, within the Denver metropolitan area. Developed areas, including residential development and the Airport Boulevard Gateway Area (a growing business hub), border the base to the west and northwest. Land uses bordering the base to the east include light industrial land uses. Residential areas border the base on the southwest side. The East Toll Gate Creek 100-Year Floodplain borders the base to the southwest and provides a buffer between the developed areas and the installation boundary. A Regional Park and Open Space designation are proposed for areas immediately south of the installation (Buckley AFB, 2002).

Areas within Buckley AFB are for the most part industrial and include the large radomes located within the northwest portion of the base. Generally, land use on the base currently includes National Guard and Reserve facilities to the east of Aspen Street, and active-duty facilities to the west (Buckley AFB, 2002). Land uses within Buckley AFB are primarily divided into fourteen categories (Administrative, Aircraft Operations and Maintenance, Airfield, Airfield Pavements, Community Commercial, Community Service, Housing-Accompanied, Housing-Unaccompanied, Industrial, Medical, Mission Operations and Maintenance, Open Space, Outdoor Recreation, and Water). The land use categories were developed to prevent incompatible siting of facilities and/or operations (Figure 3-1).

##### ***3.1.1.1 Small Arms Range***

The proposed Small Arms Range complex would consist of a 9,785 ft<sup>2</sup> (909 m<sup>2</sup>) CATM facility that is immediately adjacent to a 23,735 ft<sup>2</sup> (2,373 m<sup>2</sup>) fully contained, enclosed firing range. The Small Arms Range has a planned Industrial land use purpose and would require, with inclusion of associated parking areas and landscaping, approximately 1.128 acres (0.456 hectares).

##### ***Proposed Action***

The Small Arms Range Proposed Action area would be located on the southeast corner of the base in an undeveloped area with an existing land use of Open Space and a proposed future land use of Industrial. The construction of the proposed facility would change the land use from Open Space to Industrial.

Adjacent land uses surrounding the Proposed Action location include Open Space and Administrative land use areas. The majority of the areas surrounding the Proposed Action are vacant, with the exception of existing buildings 1620, 1631, and 1632. The project site is bordered on the east by the base boundary. Silver Creek Street, a recently paved road, is located to the east and north. The Proposed Action site would be located to the northeast of Runway 14/32, which would provide a distinct boundary for the intended Small Arms Range use (Buckley AFB, 2004b).

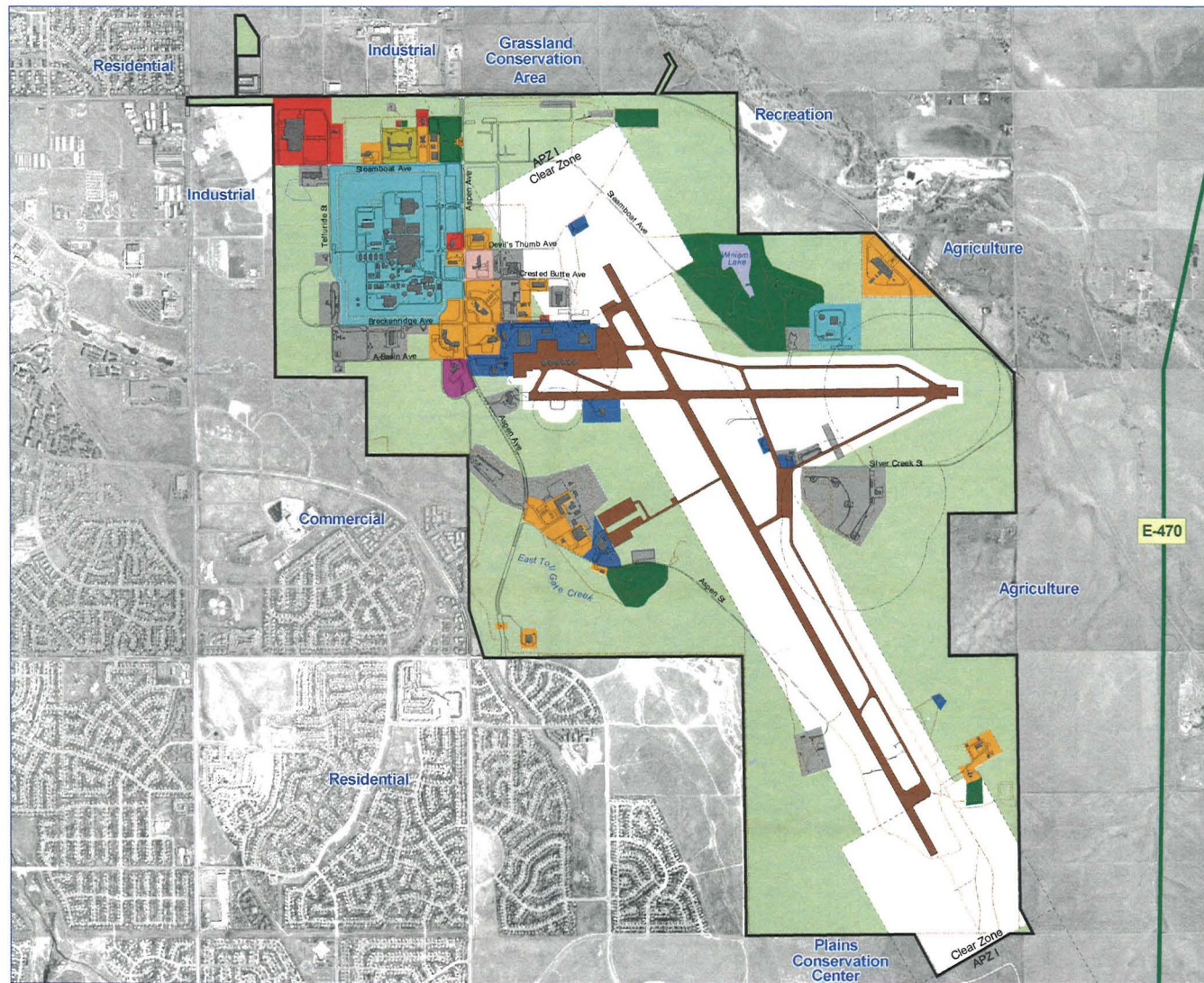
##### ***No Action***

Existing land uses would continue until they are altered or replaced by other land uses in response to base expansion.

## **SECTION THREE    Affected Environment and Environmental Consequences**

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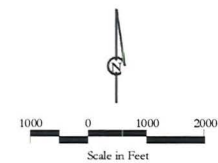
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## Existing Land Use

### Legend

- Administrative
- Aircraft Operations and Maintenance
- Airfield
- Airfield Pavements
- Community Commercial
- Community Service
- Housing - Accompanied
- Housing - Unaccompanied
- Industrial
- Medical
- Mission Operations and Maintenance (Admin)
- Open Space
- Outdoor Recreation
- Water



**Figure 3-1 Existing Land Use**

BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AIR FORCE BASE - COLORADO

SOURCE: Buckley AFB 2002(a) Buckley AFB General Plan

## **SECTION THREE**    **Affected Environment and Environmental Consequences**

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## **SECTION THREE      Affected Environment and Environmental Consequences**

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### ***Alternative 1***

Under Alternative 1, the Small Arms Range would be located along the eastern boundary of the base adjacent to the northwest corner of the Proposed Action. The Alternative 1 site would be located within an area with an existing land use of Open Space and a proposed future land use of Industrial.

### ***Alternative 2***

Under Alternative 2, the Small Arms Range would be located to the southwest of Runway 14/32, just south of the control tower, and buildings 1501, 1502, 1503, and 1504. The Alternative 2 site would be located within an area with an existing land use of Outdoor Recreation and a proposed future land use of Outdoor Recreation.

#### ***3.1.1.2 Logistics Readiness Complex***

The proposed Logistics Readiness Complex would consist of a 24,650-ft<sup>2</sup> (2,290-m<sup>2</sup>) facility that includes training and administration space. The Logistics Readiness Complex would be designated for industrial land use purposes and would require, with inclusion of associated parking areas and landscaping, approximately 0.896 acres (0.362 hectares) (Figure 3-1) (Buckley AFB, 2002).

### ***Proposed Action***

Under the Proposed Action, the Logistics Readiness Complex site would be located east of Aspen Street, northwest of the future Continuing Education Complex location and directly east of the future Leadership Development Center location. The site is currently designated as Open Space with a proposed future land use designation of Industrial. Surrounding areas have existing land use designations of Industrial and Open Space.

### ***No Action***

Existing land uses would continue until they are altered or replaced by other land uses in response to base expansion.

### ***Alternative 1***

Under Alternative 1, the Logistics Readiness Complex site would be located on a vacant parcel of land on the northeast side of Sunlight Way, southwest of Building 1000 and on top of Module 5, which would be removed. Alternative 1 is located within an area that is currently designated for Administrative land use purposes. Proposed future land use of the location is also Administrative (Buckley AFB, 2002).

### ***Alternative 2***

Under Alternative 2, the Logistics Readiness Complex would be located on a vacant parcel of land west of Aspen Way and southwest of the new Wing headquarters Building 606. The site would be located within an area that is currently designated as Open Space, with a proposed future land use for Outdoor Recreation.



## **SECTION THREE      Affected Environment and Environmental Consequences**

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### ***3.1.1.3 Consolidated Services Facility***

The proposed Consolidated Services Facility would consist of a 14,101-ft<sup>2</sup> (1,310-m<sup>2</sup>) facility that provides office and storage spaces for each of the consolidated missions. The Consolidated Services Facility site would be zoned for administrative use purposes and would require, with inclusion of associated parking areas and landscaping, approximately 1.5 acres (0.607 hectares) (Figure 3-1) (Buckley AFB, 2002).

#### ***Proposed Action***

Under the Proposed Action, the Consolidated Services Facility site would be located to the west of Wing Headquarters (Building 606). Open Space is located to the south with the fire station located to the southeast. Breckenridge Avenue is located to the north of the site and A-Basin Avenue is adjacent to the south. Existing land use at the Proposed Action location is Open Space with proposed future land use for the site being Community Service and Administrative. Surrounding land use to the east is Administrative, to the south as Open Space, and to the west and north as Industrial.

#### ***No Action***

Existing land uses would continue until they are altered or replaced by other land uses in response to base expansion.

#### ***Alternative 1***

Under Alternative 1, the Consolidated Services Facility would be located on a vacant parcel of land west of Aspen Way and southwest of the new Wing headquarters Building 606. The Alternative 1 site would be located within an area that is currently designated as Open Space, with a proposed future land use for Outdoor Recreation.

#### ***Alternative 2***

Under Alternative 2, the Consolidated Services Facility would be located on a vacant parcel of land east of Aspen Street, north of the proposed site for the Logistics Readiness Complex and south of Building 805. Alternative 2 is located within an area that is currently designated as Open Space with proposed future land uses of Industrial.

### ***3.1.1.4 Communications Center***

The proposed Communications Center would consist of an approximately 37,738-ft<sup>2</sup> (3,506-m<sup>2</sup>) facility with basement. The Communications Center is currently zoned for administrative use purposes and would require, with inclusion of associated parking areas and landscaping, approximately 1.42 acres (0.574 hectares).

#### ***Proposed Action***

The Proposed Action for the Communications Center is to add an addition to the north side of the existing Communications Center Building 730. Areas to the north of Building 730 are vacant and include undeveloped land. Open Space is located to the north and east of the site. Aspen Street is located to the west followed by land designated as Community Commercial. Devil's Thumb Avenue is located to the

## **SECTION THREE      Affected Environment and Environmental Consequences**

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south followed by land designated as Administrative. The location is currently designated as Administrative and has a proposed future land use as Administrative.

### ***No Action***

Existing land uses would continue until they are altered or replaced by other land uses in response to base expansion.

### ***Alternative 1***

Alternative 1 would include construction of a new Communications Center facility separate from the existing location. The site is a vacant, undeveloped parcel of land located west of Aspen Street and south of Beaver Creek Street near Building 600, the Medical Facility. The site is currently designated as Open Space with future land use plans being Medical and Open Space.

### ***Alternative 2***

In Alternative 2 the existing Communications Center in Building 730 would be demolished and a new building would be constructed at the same location. The existing land use and future land use for the Alternative 2 location is Administrative.

## **3.1.2 Impacts**

The primary issues and concerns related to land use include the ability of Buckley AFB to continue to perform its mission while maintaining the viability of the land uses at and adjacent to the base. Also of concern are the health, safety, and welfare of persons using land adjacent to Buckley AFB. The region of influence (ROI) considered for land use was limited to the Buckley AFB boundaries.

Impacts to land use from the Proposed Action or action alternatives would include:

- land use changes on base that would conflict with community land use plans or zoning,
- land use conflicts on base that are considered incompatible with the Buckley AFB General Plan, and
- land use changes on base that would impact communities (i.e. residential, business) that are located off base, adjacent to Buckley AFB.

### ***3.1.2.1 Small Arms Range***

Since activities under the Proposed Action and action alternatives would occur within base boundaries, no off-base impacts to land use are expected to occur as a result of the Proposed Action or action alternatives.

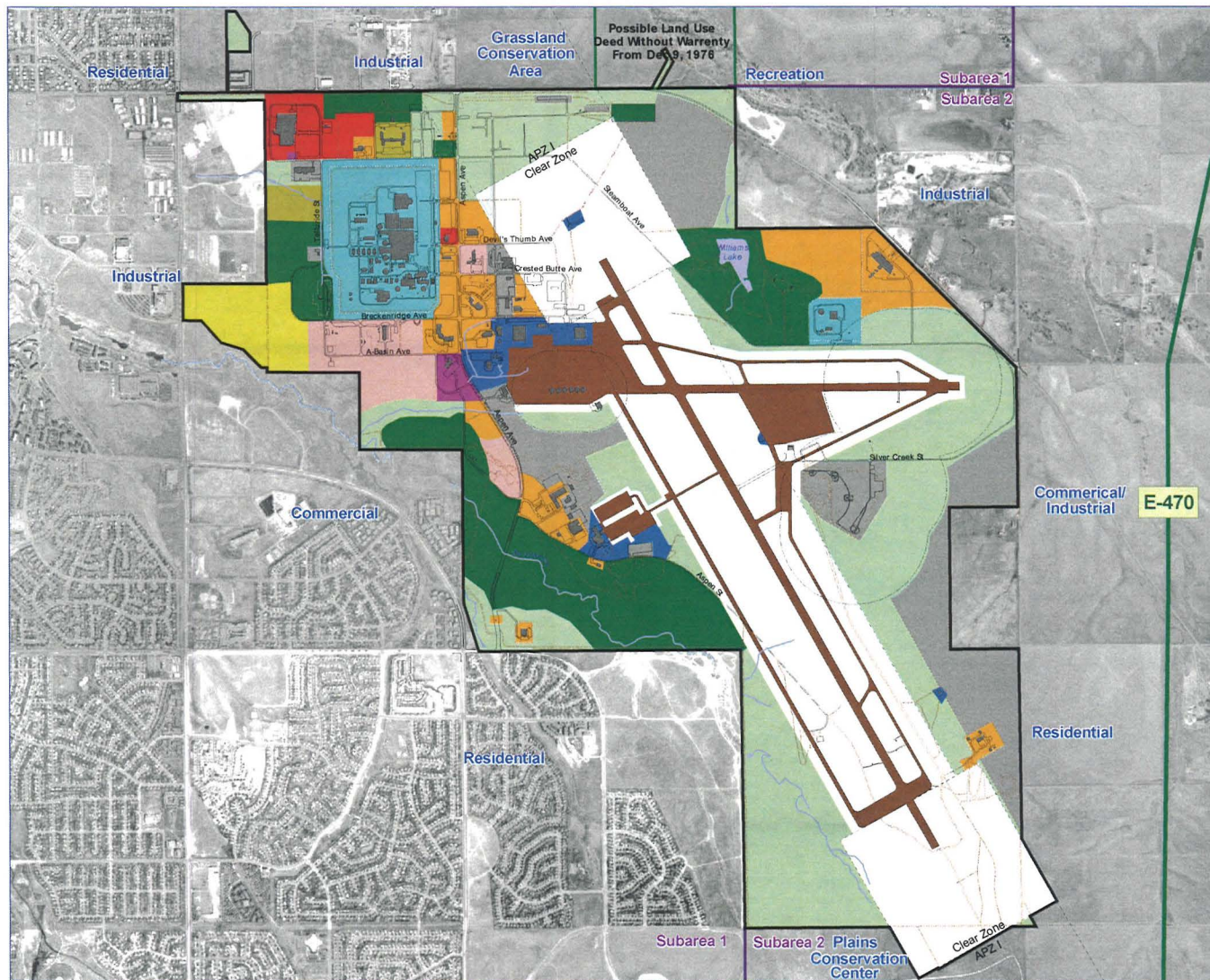
### ***Proposed Action***

Direct impacts of the Proposed Action would include the conversion of approximately 1.13 acres (0.456 hectares) of designated Open Space to land developed and utilized for industrial purposes (Figure 3-2) (Buckley AFB, 2002). However, implementing the Proposed Action would be in conformance with the Buckley AFB General Plan and with the future planned land uses. On-base impacts are expected to be negligible as a result of the Proposed Action.

## **SECTION THREE**     **Affected Environment and Environmental Consequences**

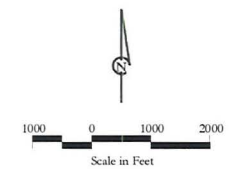
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## Future Land Use

- Legend**
- Administrative
  - Aircraft Operations and Maintenance
  - Airfield
  - Airfield Pavements
  - Community Commercial
  - Community Service
  - Housing - Accompanied
  - Housing - Unaccompanied
  - Industrial
  - Medical
  - Mission Operations and Maintenance (Admin)
  - Open Space
  - Outdoor Recreation
  - Water



**Figure 3-2 Future Land Use**

BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AIR FORCE BASE - COLORADO

SOURCE: Buckley AFB 2002(a.) Buckley AFB General Plan

## **SECTION THREE**    **Affected Environment and Environmental Consequences**

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## **SECTION THREE      Affected Environment and Environmental Consequences**

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### ***No Action***

No direct impacts to land use types as a result of the No Action Alternative are anticipated.

### ***Alternative 1***

Impacts and land use changes occurring from Alternative 1 would be similar to the Proposed Action.

### ***Alternative 2***

Direct impacts of Alternative 2 would include the conversion of approximately 1.13 acres (0.456 hectares) of designated outdoor recreation to land developed and utilized for industrial purposes (Figure 3-2) (Buckley AFB, 2002). However, implementing Alternative 2 would not be in conformance with the Buckley AFB General Plan for future planned land uses. Impacts to land use are expected since the land use designation for Alternative 2 would conflict with the Buckley AFB General Plan.

#### ***3.1.2.2 Logistics Readiness Complex***

Since activities under the Proposed Action and action alternatives would occur within base boundaries, no off-base impacts to land use are expected to occur as a result of the Proposed Action or action alternatives.

### ***Proposed Action***

Direct impacts of the Proposed Action would include the conversion of approximately 0.9 acres (0.362 hectares) of Open Space to an industrial use (Figure 3-2) (Buckley AFB, 2002). However, implementing the Proposed Action would be in conformance with the Buckley AFB General Plan and the Vision 2020 Brochure (460 CES/CEC, 2002). On-base impacts are expected to be negligible as a result of the Proposed Action.

### ***No Action***

No direct impacts to land use types as a result of the No Action Alternative are anticipated.

### ***Alternative 1***

Land uses at the Alternative 1 location are currently designated for Administrative purposes, and would therefore not have to change. Implementing Alternative 1 would not be in conformance with the Buckley AFB General Plan as the area has future planned uses for Industrial and Alternative 1 is designated as Administrative. On-base impacts are expected as a result of Alternative 1.

### ***Alternative 2***

Direct impacts would include the conversion of approximately 0.9 acres (0.362 hectares) of undeveloped land to an industrial use (Figure 3-1) (Buckley AFB, 2002). Future development of this area includes the conversion of Open Space to Outdoor Recreation (Figure 3-2) (Buckley AFB, 2002). Impacts to land use are expected since the land use designation for Alternative 2 would conflict with the Buckley AFB General Plan.

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

### ***3.1.2.3 Consolidated Services Facility***

Since activities under the Proposed Action and action alternatives would occur within base boundaries, no off-base impacts to land use are expected to occur as a result of the Proposed Action or action alternatives.

#### ***Proposed Action***

Direct impacts would include the conversion of approximately 1.5 acres (0.607 hectares) of Open Space to be developed and utilized for administrative functions (Buckley AFB, 2002) (Figure 3-2). Implementing the Proposed Action would be in conformance with the Buckley AFB General Plan and the Vision 2020 Brochure (460 CES/CEC, 2002). On-base impacts are expected to be negligible as a result of the Proposed Action.

#### ***No Action***

No direct impacts to land use types as a result of the No Action Alternative are anticipated.

#### ***Alternative 1***

Future development of the Alternative 1 location would include the conversion of Open Space to Administrative land use (Figure 3-2) (Buckley AFB, 2002). Impacts to land use are expected since the land use designation for Alternative 1 would conflict with the Buckley AFB General Plan and future Outdoor Recreation land uses for the area.

#### ***Alternative 2***

Depending on the final footprint of Alternative 2, it may be located on or adjacent to other Capital Improvement Projects (construction projects) described within the Buckley AFB General Plan, including a consolidated fuels facility. Impacts to land use are expected since the land use designation for Alternative 2 would conflict with the Buckley AFB General Plan.

### ***3.1.2.4 Communications Center***

Since activities under the Proposed Action and action alternatives would occur within base boundaries, no off-base impacts to land use are expected to occur as a result of the Proposed Action or action alternatives.

#### ***Proposed Action***

Impacts are expected to be negligible as a result of the Proposed Action since the location is already designated as Administrative and land use would not change. Implementing the Proposed Action would be consistent with the Buckley AFB General Plan and the Vision 2020 Brochure (460 CES/CEC, 2002).

#### ***No Action***

No direct impacts to land use types as a result of the No Action Alternative are anticipated.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Alternative 1***

Alternative 1 is located within an area that the Buckley AFB General Plan and the 2020 Vision Brochure have identified as a potential location to expand the Medical Facility (460 CES/CEC, 2002). Direct impacts include the conversion of approximately 1.44 acres (0.58 hectares) of undeveloped land that has future designation as Open Space and Medical to be developed and utilized for administrative functions. Impacts to land use are expected since the land use designation for Alternative 1 would conflict with the Buckley AFB General Plan and Vision 2020 Brochure (460 CES/CEC, 2002).

### ***Alternative 2***

The construction of Alternative 2 would occur within an area that is currently designated as Administrative use. Implementing Alternative 2 would be in conformance with the Buckley AFB General Plan and the Vision 2020 Brochure (460 CES/CEC, 2002). Impacts to land use are expected to be negligible as a result of implementing Alternative 2.

## **3.2 SOCIOECONOMICS**

The socioeconomics section discusses and provides a full disclosure of economic conditions within and adjacent to the project area. Census data and other sources were used to derive data about base and surrounding populations, local employment and payroll, and other socioeconomic indicators.

### **3.2.1 Affected Environment**

Buckley AFB is located approximately 8 miles east of Denver, Colorado, within the city of Aurora, in Arapahoe County. Buckley population statistics were previously discussed and can be found in Section 1.1.

According to the 2003 Economic Impact Analysis performed at Buckley AFB, Buckley generates an annual payroll of \$490,092,390 comprised of \$228,175,272 being for military payroll, \$81,214,065 for civilian payroll, and \$180,703,053 for non-appropriated funds, contract civilians, and private businesses. Approximately 5,741 indirect jobs were created at Buckley AFB in 2003 with an estimated annual dollar value of \$241,885,553. The total estimated annual economic impact from Buckley is \$878,919,917. (460th Space Wing, 2003)

Between 1990 and 2000, median income in Arapahoe County increased by 40 percent, and personal income showed an increase of 124 percent. Per capita personal income showed an increase from \$9,370 to \$28,147. Non-farm and farm personal income increased 124 percent to approximately \$21.6 billion, and 447 percent to approximately \$1.7 million, respectively, in 2000. The categories with the highest percent increase in earnings between 1990 and 2000 were state government (325 percent); transportation and public utilities (297 percent); finance, insurance, and real estate (264 percent); and agricultural services (211 percent). The mining industry lost earnings between 1990 and 2000 (-19.1 percent) (Buckley AFB, 2004e).

Total full-time and part-time employment increased 62 percent to 389,723 jobs in Arapahoe County between 1990 and 2000. The largest percentage employment gains between 1990 and 2000 were in construction (163 percent); transportation and public utilities (130 percent); state government (123 percent); and agricultural services (108 percent); and agricultural services (108 percent). Job loss was reported for mining (-41 percent) and farms (-15 percent). (Buckley AFB, 2004e)

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

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### **3.2.2 Impacts**

This section addresses socioeconomic impacts that could be considered direct effects on the environment, such as changes to population and housing, and that are separate from strictly economic impacts, such as a loss of revenue. This information is provided to allow an assessment of the comparative costs and economic benefits of the project and its alternatives. The ROI included Buckley AFB and areas immediately adjacent to the base.

#### ***3.2.2.1 Small Arms Range***

The number of staff present at the Small Arms Range would fluctuate based on training sessions, class size, class schedule, and required drills.

#### ***Proposed Action***

The Proposed Action would not result in any additional base employees. The personnel needed to support the facility would come from an existing facility in which they are sharing or have inadequate space. Therefore, the increased number of personnel at Buckley AFB resulting from the Proposed Action is not expected to impact the local workforce, population, or housing.

Construction costs associated with the Proposed Action would have a direct, beneficial impact on the local economy (Buckley AFB, 2004b). Construction workers for the proposed action would primarily be drawn from the existing local workforce or outside contractors, resulting in beneficial, short-term direct effects on the local economy. However, it is expected that no new hiring of construction workers would occur due to existing workers within local companies being utilized. Construction employment workforces would be concentrated within the local area, thereby reducing the probability of a change in population growth based on the construction of the facility.

#### ***No Action***

The No Action Alternative would not provide work for local construction workers and would therefore not generate additional revenue for the local economy. However, because additional construction workers would probably not have been hired specifically for the action alternatives and would be used on construction projects elsewhere, there would be no adverse impacts from the No Action Alternative.

#### ***Alternative 1***

Impacts at the Alternative 1 location for the Small Arms Range would be the same as the Proposed Action.

#### ***Alternative 2***

Impacts at the Alternative 2 location for the Small Arms Range would be the same as the Proposed Action.

## **SECTION THREE      Affected Environment and Environmental Consequences**

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### ***3.2.2.2   Logistics Readiness Complex***

#### ***Proposed Action***

The Proposed Action would not result in any additional base employees. The personnel needed to support the facility would come from an existing facility in which they are sharing or have inadequate space. Approximately 37 to 42 people would be staffed at the new Logistics Readiness Complex. Therefore, the increased number of personnel at Buckley AFB resulting from the Proposed Action is not expected to impact the local workforce, population, or housing.

Construction costs associated with the Proposed Action would have a direct, beneficial impact on the local economy (Buckley AFB, 2004c). Construction workers would primarily be drawn from the local workforce or outside contractors, resulting in beneficial, short-term direct effects on the local economy. However, it is expected that no new hiring of construction workers would occur due to existing workers within local companies being utilized. Construction employment workforces would be concentrated within the local area, thereby reducing the probability of a change in population growth based on the construction of the facility.

#### ***No Action***

The No Action Alternative would not provide work for local construction workers and would therefore not generate additional revenue for the local economy. However, because additional construction workers would probably not have been hired specifically for the action alternatives and would be used on construction projects elsewhere, there would be no adverse impacts from the No Action Alternative.

#### ***Alternative 1***

Impacts at the Alternative 1 location for the Logistics Readiness Complex would be the same as the Proposed Action.

#### ***Alternative 2***

Impacts at the Alternative 2 location for the Logistics Readiness Complex would be the same as the Proposed Action.

### ***3.2.2.3   Consolidated Services Facility***

#### ***Proposed Action***

The Proposed Action would not result in any additional base employees. The personnel needed to support the facility would come from an existing facility in which they are sharing or have inadequate space. Forty people are currently employed within the existing Consolidated Services Facility. Therefore, the increased number of personnel at Buckley AFB resulting from the Proposed Action is expected have no impact on the local workforce, population, or housing.

Construction costs associated with the Proposed Action would have a direct, beneficial impact on the local economy (Buckley AFB, 2004d). Construction workers would primarily be drawn from the local workforce or outside contractors, resulting in beneficial, short-term direct effects on the local economy. However, it is expected that no new hiring of construction workers would occur due to existing workers



## **SECTION THREE      Affected Environment and Environmental Consequences**

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within local companies being utilized. Construction employment workforces would be concentrated within the local area, thereby reducing the probability of a change in population growth based on the construction of the facility.

### ***No Action***

The No Action Alternative would not provide work for local construction workers and would therefore not generate additional revenue for the local economy. However, because additional construction workers would probably not have been hired specifically for the action alternatives and would be used on construction projects elsewhere, there would be no adverse impacts from the No Action Alternative.

### ***Alternative 1***

Impacts at the Alternative 1 location for the Consolidated Services Facility would be the same as the Proposed Action.

### ***Alternative 2***

Impacts at the Alternative 1 location for the Consolidated Services Facility would be the same as the Proposed Action.

### ***3.2.2.4 Communications Center***

#### ***Proposed Action***

The Proposed Action would not result in any additional base employees. Staff proposed for the Communications Center includes those working at the existing facility, Building 730, with the addition of those being transferred from Building 950. The personnel needed to support the facility would come from an existing facility in which they are sharing or have inadequate space. Therefore, the increased number of personnel at Buckley AFB resulting from the Proposed Action is expected to have no impact on the local workforce, population, or housing.

Construction costs associated with the Proposed Action is dependent on the action selected, but would have a direct, beneficial impact on the local economy. Construction workers would primarily be drawn from the local workforce or outside contractors, resulting in beneficial, short-term direct effects on the local economy. However, it is expected that no new hiring of construction workers would occur due to existing workers within local companies being utilized. Construction employment workforces would be concentrated within the local area, thereby reducing the probability of a change in population growth based on the construction of the facility.

#### ***No Action***

The No Action Alternative would not provide work for local construction workers and would therefore not generate additional revenue for the local economy. However, because additional construction workers would probably not have been hired specifically for the action alternatives and would be used on construction projects elsewhere, there would be no adverse impacts from the No Action Alternative.

***Alternative 1***

Impacts at the Alternative 1 location for the Communications Center would be the same as the Proposed Action.

***Alternative 2***

Impacts at the Alternative 2 location for the Communications Center would be the same as the Proposed Action.

**3.3 AIR QUALITY****3.3.1 Affected Environment**

Buckley AFB is located in Arapahoe County, Colorado, within the Metropolitan Denver Air Quality Control Region (AQCR). Given the regional nature of air quality, the ROI for this resource is the entire Denver AQCR. The Denver AQCR is currently designated attainment/maintenance for carbon monoxide (CO), the 1-hour ozone standard, sulfur oxides (SO<sub>x</sub>), and particulate matter with a diameter of 10 micrometers or less (PM<sub>10</sub>) (Colorado Air Quality Control Commission [CAQCC], 2001a, 2001b, 2001c; CDPHE, 2004). The Denver metropolitan area exceeded both the 1-hour and the 8-hour ozone standards during the summer of 2003. The region has entered into an Ozone Early Action Compact with USEPA and has committed to an extensive ozone modeling effort and early implementation of control measures as needed to ensure attainment of the 8-hour ozone standard by 2007 (CAQCC, 2004).

Buckley AFB is a major source of criteria pollutants under the Title V program because it has the potential to emit more than 100 tons of the criteria pollutants, sulfur dioxide (SO<sub>2</sub>) and oxides of nitrogen (NO<sub>x</sub>). Buckley AFB is a minor source of CO, volatile organic compounds (VOC), and PM<sub>10</sub> under the Prevention of Significant Deterioration (PSD) provisions with a potential to emit of less than 250 tons per year of these pollutants. Buckley AFB is a PSD synthetic minor source of NO<sub>x</sub> and SO<sub>2</sub> because the base accepted permit limits that establish the potential to emit for these pollutants at less than 250 tons per year (Jensen, 2002). Buckley AFB's Title V Operating Permit Number 950PAR118 was originally issued on 28 August 1997, renewed on 1 July 2002, and expires on 30 June 2007 (CDPHE, 2002).

The Title V permit documents stationary sources of regulated emissions at Buckley AFB, including natural gas-fired boilers; furnaces and heaters; dual fuel-fired boilers (capable of firing natural gas or number 2 oil); diesel-fired generators; gasoline-fired arresting barrier engines; fuel storage tanks; and degreasers. Combustion sources can emit CO, NO<sub>x</sub>, lead, sulfur oxides (SO<sub>x</sub>), PM<sub>10</sub> and VOCs, while storage tanks and degreasing stations can emit VOCs.

The Title V operating permit requires Buckley AFB to review and update the inventory of all the stationary emission units at the end of each calendar year and calculate the total of criteria pollutant and Hazardous Air Pollutants (HAP) emissions. The 2003 Air Emissions Inventory summary for Buckley AFB is presented in Table 3-1.

Mobile sources are not regulated under the Clean Air Act, Title V operating permit, or the Colorado operating permit program, but are considerable components of total base emissions. Mobile sources at Buckley AFB include on- and off-road vehicles and equipment, aerospace ground equipment, and aircraft operations. Emissions from mobile sources include CO, NO<sub>x</sub>, lead, SO<sub>x</sub>, PM<sub>10</sub> and VOCs.

## SECTION THREE

## Affected Environment and Environmental Consequences

Table 3-1. Calendar Year 2003 Summary of Basewide Air Emissions Inventory

Criteria Pollutants	Stationary Source Emissions (tpy)	Stationary Source Permit Limits (tpy)	Mobile Source Emissions (tpy)	Total Emissions (tpy)
NO <sub>x</sub>	64	249.9	41	104.7
SO <sub>x</sub>	1.1	249.9	2.1	3.2
VOCs	24	99.9	57	81
CO	23	99.9	204	227
PM <sub>10</sub>	23	99.9	5	28
Hazardous Air Pollutants	3.52	NA	NA	3.52

tpy = tons per year

### 3.3.2 Impacts

Impacts to air quality were evaluated with respect to the PSD and general conformity regulations (40 CFR Part 51 and 40 CFR Part 93 Subpart B respectively) and Buckley AFB's Title V Permit. The general conformity regulations apply to any federal action that takes place within an area designated as non-attainment or maintenance for a criteria pollutant. The General Conformity Rule does not apply to actions that are not considered regionally significant and where the total direct and indirect emissions of non-attainment criteria pollutants do not equal or exceed *de minimus* threshold levels for criteria pollutants established in 40 CFR 93.153(b). A federal action is considered regionally significant when its total emissions equal or exceed 10 percent of the non-attainment area's emissions inventory for any criteria air pollutant. If a Federal action meets *de minimus* requirements and is not considered a regionally significant action, then it does not have to undergo a full conformity determination (Buckley AFB, 2004e). However, if emissions exceed the *de minimis* levels or are regionally significant, the USEPA provides several methods to determine if an action conforms to an implementation plan. These methods include: (1) ensuring that emissions from the project are specifically included in the State Emissions Budget, (2) providing emission offsets, and/or (3) conducting air quality modeling. A federal agency can use one or any combination of the methods to show positive conformity (40 CFR 93.158).

#### 3.3.2.1 Small Arms Range

##### *Proposed Action*

The Proposed Action would affect air quality in three ways: (1) the construction activities would produce fugitive dust and pollutants from vehicle and heavy equipment exhaust; (2) the operation of new buildings and facilities would increase emissions from furnaces, hot water heaters, and tanks used to store fuels for these sources; and (3) increased traffic associated with use of new facilities would cause automobile emissions. In addition, Ozone Depleting Substances (ODS) contained in air-conditioning units for climate control would need to be properly managed to prevent releases to the atmosphere. These emissions would be considered direct impacts, as they would occur at the same time and place as the Proposed Action (e.g., point of emission from vehicle and equipment exhaust; stacks and/or vents for furnaces, hot water heaters; and loss of ODS from heating ventilation and air-conditioning [HVAC] systems (Buckley AFB, 2004e).

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

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### ***Construction Activities***

Construction and demolition activities associated with the Proposed Action would create short-term fugitive dust emissions from the following activities:

- Site grading (scrapping, bulldozing, and compacting)
- Foundation excavation
- Utilities trenching
- Material handling (soils, aggregate, and demolition of debris/waste)
- Vehicle travel on paved and unpaved roads
- Building construction
- Walk-way, sidewalk and parking lot preparation, paving, and painting
- Landscape and turf installation
- Miscellaneous emissions (equipment track out, windblown dust, etc.) (Buckley AFB 2004d)

Fugitive dust emissions generated from individual Proposed Construction III projects would depend on the extent and duration that the activities listed above are performed to complete each project. For purposes of this EA, fugitive dust emissions were estimated based on the area of ground disturbance related to each construction project. Areas of ground disturbance were assumed at maximum anticipated footprint sizes, with contingency for contractor staging and preparation areas.

BMPs that can be instituted on-site to minimize fugitive dust emissions may include the application of water or other chemical stabilizers on exposed earth surfaces, and other preventive techniques. The following techniques have been shown to be effective for controlling the generation and migration of dust during construction and vehicle and equipment travel activities:

- Keeping roads clean and free of dirt spilled or tracked from construction equipment
- Applying water on haul roads and other exposed earth surfaces
- Hauling materials in properly covered or watertight containers
- Restricting vehicle speeds to 10 miles per hour
- Covering excavated areas and material after excavation activity ceases
- Reducing the excavation size and/or number of excavations (Buckley AFB 2004d).

Using the above-mentioned dust suppression techniques (within reason) would not create excess water that would result in unacceptable wet conditions. In addition, control techniques, such as chemical stabilization, reduction of surface wind speed with windbreaks (snow fence, silt fence), or source enclosures (netting, mulching) can be employed to suppress dust generation and migration without the use of water (Buckley AFB, 2004e).

Additional preventive techniques may entail periodic street and access road sweeping, expeditious clean-up of materials spilled on paved or unpaved travel surfaces, gravelling of dirt access roads and work areas, the elimination of mud/dirt carryout on paved roads at construction sites, and vehicle washing. These measures would aid in preventing or reducing the deposition of materials that could become airborne through vehicle and equipment traffic or by wind (Buckley AFB, 2004e).

## SECTION THREE

## Affected Environment and Environmental Consequences

Combustion emissions would be generated from operation of heavy equipment during the ground disturbance phase of construction, delivery of materials to Buckley AFB, and commuting by contractor employees to the base in their personal vehicles. Pollutants from vehicle and heavy equipment exhaust include NO<sub>x</sub>, CO, PM<sub>10</sub>, and VOCs.

The Air Conformity Analysis Model (ACAM) was used to estimate emissions from the construction phase of the Proposed Action (U.S. Air Force, 2003a). ACAM calculates construction emissions based on algorithms developed by South Coast and Santa Barbara Air Quality Management Districts from California, and it incorporates the USEPA's Mobile6, a regulatory on-road source model to calculate on-road vehicle emissions (Air Force Center for Environmental Excellence, 2004; South Coast Air Quality Management District, 1993; Sacramento Metropolitan Air Quality Management District, 1994).

Table 3-2 shows the estimated pollutant emissions that may result from the Proposed Action. Fugitive dust emissions are included in PM<sub>10</sub> values.

**Table 3-2. Small Arms Range Construction Air Emissions**

Criteria Pollutants	Denver AQCR Total Emissions <sup>1</sup> (tpy)	Construction Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold (tpy)	Exceeds Threshold? (Yes/No)
NO <sub>x</sub>	112,785	10.65	0.0094	No	100	No
SO <sub>x</sub>	69,350	1.3	0.0019	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>
VOCs	167,900	1.26	0.0008	No	100	No
CO	678,170	7.99	0.0012	No	100	No
PM <sub>10</sub>	32,156	3.68	0.0014	No	100	No

<sup>1</sup>Source: (CAQCC, 2001a, 2001b, 2001c)

<sup>2</sup>Source: 40 CFR 93.153(b)(1)

<sup>3</sup>There are no regionally significant or applicable thresholds for SO<sub>x</sub> because the Metropolitan Denver AQCR is in attainment for this pollutant.

tpy = tons per year

According to the CDPHE Air Pollution Control Division (APCD) regulations (Regulation 3.II.D.1.j), a construction permit would be required if the project disturbs more than 25 acres or if the construction duration would be more than 6 months.

### *Emissions from Completed Building and Facility Operation Activities*

The only stationary sources of emissions from completed buildings and facilities that would be installed and operated as part of the Proposed Action are furnaces, boilers, and hot water heaters. Details of building heating operations are not known at this time. However, installation of these sources as part of the Proposed Action may require modification of the Title V air quality operating permit. Combustion sources would emit NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and VOCs. Emissions from these sources would be similar to those created from like equipment currently permitted and operating at the base. Currently, Buckley AFB installation facilities consist of approximately 2.2 million gross square ft and use approximately 135.7 million ft<sup>3</sup> (3.84 million m<sup>3</sup>) of natural gas per year (Buckley AFB, 2002c; Buckley, 2004f). The Proposed Action would add an additional 33,520 ft<sup>2</sup> (3,110 m<sup>2</sup>) of building area. Assuming a direct ratio of building area to natural gas use, the Proposed Action would result in an increase in natural gas use of approximately 2.1 million ft<sup>3</sup> (59,500 m<sup>3</sup>) per year.

Emissions from the Proposed Action would also result from arms firing. However, since this range would replace the existing base firing range, emissions are not expected to increase substantially, even with the addition of the grenade launching area. Emissions from small arms firing were calculated based on emission factors from Air Force and USEPA Guidance (IERA, 1999; USEPA 2004). Of the criteria



## SECTION THREE Affected Environment and Environmental Consequences

pollutants, estimated CO emissions are the highest, and they are only 20 pounds per year. Lead emissions are estimated at 3 pounds per year.

ACAM was used to estimate emissions from the operation phase of the Proposed Action (USAF, 2003a). Annual emissions for the operation of these units are shown in Table 3-3.

**Table 3-3. Small Arms Range Operation Air Emissions**

Criteria Pollutants	Denver AQCR Total Emissions <sup>1</sup> (tpy)	Operation Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold (tpy)	Exceeds Threshold? (Yes/No)
NO <sub>x</sub>	112,785	0.10	0.0001	No	100	No
SO <sub>x</sub>	69,350	0.00	0	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>
VOCs	167,900	0.01	0	No	100	No
CO	678,170	0.15	0	No	100	No
PM <sub>10</sub>	32,156	0.02	0.0001	No	100	No

<sup>1</sup>Source: (CAQCC, 2001a, 2001b, 2001c)

<sup>2</sup>Source: 40 CFR 93.153(b)(1)

<sup>3</sup>There is no regionally significant or applicable thresholds for SO<sub>x</sub> because the Metropolitan Denver AQCR is in attainment for this pollutant.

tpy = tons per year

### **Increased Traffic**

Operation of the Small Arms Range would not increase the daily traffic flow in the ROI because no additional employees would be added as a result of the Proposed Action, and the Proposed Action would replace a similar existing facility on base.

### **Air Conformity Analysis for the Proposed Action**

The ACAM was used to estimate the direct and indirect emissions increase from the Proposed Construction III projects and compare it to the regionally significant and *de minimus* levels. In the ACAM analysis, all four Proposed Construction III projects are conservatively assumed to occur simultaneously. The site-grading phase is estimated to take 1 month, and the construction phase is estimated to take 11 months. Site operation is assumed to begin the following year. The estimated values for CO, VOC, NO<sub>x</sub>, SO<sub>x</sub>, and PM<sub>10</sub> were determined to be less than the USEPA *de minimus* values and less than 10 percent of the Denver AQCR emission inventory. Therefore, a conformity determination is not required. Because the Proposed Action's emissions would be low, temporary (for construction activities), and insignificant, the Proposed Action would conform to the State Implementation Plan (SIP) and would not have a significant impact on air quality (Buckley AFB, 2004e).

### **No Action**

Selecting the No Action Alternative would result in no impacts to ambient air quality conditions of the project area or surrounding areas since no construction activities would be undertaken. Ambient air quality conditions would remain as described in Section 3.3.1.

### **Alternative 1**

Alternative 1, which would entail constructing the Small Arms Range at an alternative location on base, would result in virtually the same air quality impacts as the Proposed Action.

## SECTION THREE Affected Environment and Environmental Consequences

### Alternative 2

Alternative 2, which would entail constructing the Small Arms Range at an alternative location on base, would result in virtually the same air impacts as the Proposed Action.

### 3.3.2.2 Logistics Readiness Complex

#### Proposed Action

Air quality impacts from construction and operation of the Logistics Readiness Complex would be similar to those of the Small Arms Range. Emissions from construction and operation of the Logistics Readiness Complex were estimated using ACAM and are summarized in Table 3-4 (construction) and Table 3-5 (operation).

**Table 3-4. Logistics Readiness Complex Construction Air Emissions**

Criteria Pollutants	Denver AQCR Total Emissions <sup>1</sup> (tpy)	Construction Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold (tpy)	Exceeds Threshold? (Yes/No)
NO <sub>x</sub>	112,785	7.83	0.0069	No	100	No
SO <sub>x</sub>	69,350	0.96	0.0014	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>
VOCs	167,900	0.94	0.0006	No	100	No
CO	678,170	5.88	0.0009	No	100	No
PM <sub>10</sub>	32,156	2.72	0.0085	No	100	No

<sup>1</sup>Source: (CAQCC, 2001a, 2001b, 2001c)

<sup>2</sup>Source: 40 CFR 93.153(b)(1)

<sup>3</sup>There is no regionally significant or applicable thresholds for SO<sub>x</sub> because the Metropolitan Denver AQCR is in attainment for this pollutant.

tpy = tons per year

**Table 3-5. Logistics Readiness Complex Operation Air Emissions**

Criteria Pollutants	Denver AQCR Total Emissions <sup>1</sup> (tpy)	Operation Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold (tpy)	Exceeds Threshold? (Yes/No)
NO <sub>x</sub>	112,785	0.10	0.0001	No	100	No
SO <sub>x</sub>	69,350	0.00	0	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>
VOCs	167,900	0.01	0	No	100	No
CO	678,170	0.14	0	No	100	No
PM <sub>10</sub>	32,156	0.01	0	No	100	No

<sup>1</sup>Source: (CAQCC, 2001a, 2001b, 2001c)

<sup>2</sup>Source: 40 CFR 93.153(b)(1)

<sup>3</sup>There is no regionally significant or applicable thresholds for SO<sub>x</sub> because Metropolitan Denver is an AQCR in attainment.

tpy = tons per year

#### Air Conformity Analysis for the Proposed Action

The estimated values for CO, VOC, NO<sub>x</sub>, SO<sub>x</sub>, and PM<sub>10</sub> were determined to be less than the USEPA *de minimus* values and less than 10 percent of the Denver AQCR emission inventory. Therefore, a conformity determination is not required.

## SECTION THREE Affected Environment and Environmental Consequences

### *No Action*

Selecting the No Action Alternative would result in no impacts to ambient air quality conditions of the project area or surrounding areas since no construction activities would be undertaken. Ambient air quality conditions would remain as described in Section 3.3.1.

### *Alternative 1*

Alternative 1, which would entail constructing the Logistics Readiness Complex at an alternative location on base, would result in virtually the same air quality impacts as the Proposed Action.

### *Alternative 2*

Alternative 2, which would entail constructing the Logistics Readiness Complex at an alternative location on base, would result in virtually the same air impacts as the Proposed Action.

### *3.3.2.3 Consolidated Services Facility*

#### *Proposed Action*

Air quality impacts from construction and operation of the Consolidated Services Facility would be similar to those of the Small Arms Range. Emissions from construction and operation of the Consolidated Services Facility were estimated using ACAM and are summarized in Table 3-6 (construction) and Table 3-7 (operation).

**Table 3-6. Consolidated Services Facility Construction Air Emissions**

Criteria Pollutants	Denver AQCR Total Emissions <sup>1</sup> (tpy)	Construction Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold (tpy)	Exceeds Threshold? (Yes/No)
NO <sub>x</sub>	112,785	4.48	0.0040	No	100	No
SO <sub>x</sub>	69,350	0.54	0.0008	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>
VOCs	167,900	0.57	0.0003	No	100	No
CO	678,170	3.37	0.0005	No	100	No
PM <sub>10</sub>	32,156	1.54	0.0048	No	100	No

<sup>1</sup>Source: (CAQCC, 2001a, 2001b, 2001c)

<sup>2</sup>Source: 40 CFR 93.153(b)(1)

<sup>3</sup>There is no regionally significant or applicable thresholds for SO<sub>x</sub> because the Metropolitan Denver AQCR is in attainment for this pollutant.

tpy = tons per year

## SECTION THREE

## Affected Environment and Environmental Consequences

**Table 3-7. Consolidated Services Facility Operation Air Emissions**

Criteria Pollutants	Denver AQCR Total Emissions <sup>1</sup> (tpy)	Operation Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold (tpy)	Exceeds Threshold? (Yes/No)
NO <sub>x</sub>	112,785	0.05	0	No	100	No
SO <sub>x</sub>	69,350	0.00	0	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>
VOCs	167,900	0.01	0	No	100	No
CO	678,170	0.13	0	No	100	No
PM <sub>10</sub>	32,156	0.00	0	No	100	No

<sup>1</sup>Source: (CAQCC, 2001a, 2001b, 2001c)

<sup>2</sup>Source: 40 CFR 93.153(b)(1)

<sup>3</sup>There is no regionally significant or applicable thresholds for SO<sub>x</sub> because the Metropolitan Denver AQCR is in attainment for this pollutant.

tpy = tons per year

### ***Air Conformity Analysis for the Proposed Action***

The estimated values for CO, VOC, NO<sub>x</sub>, SO<sub>x</sub>, and PM<sub>10</sub> were determined to be less than the USEPA *de minimus* values and less than 10 percent of the Denver AQCR emission inventory. Therefore, a conformity determination is not required.

### ***No Action***

Selecting the No Action Alternative would result in no impacts to ambient air quality conditions in the project area or surrounding areas since no construction activities would be undertaken. Ambient air quality conditions would remain as described in Section 3.3.1.

### ***Alternative 1***

Alternative 1, which would entail constructing the Consolidated Services Facility at an alternative location on base, would result in virtually the same air quality impacts as the Proposed Action.

### ***Alternative 2***

Alternative 2, which would entail constructing the Consolidated Services Facility at an alternative location on base, would result in virtually the same air impacts as the Proposed Action.

#### ***3.3.2.4 Communications Center***

### ***Proposed Action***

Air quality impacts from construction and operation of the Communications Center would be similar to those of the Small Arms Range, but with the addition of an emergency electrical generator. Operation emissions from the generator were conservatively estimated based on the use of 730 gallons of fuel per year. Emissions from construction and operation of the Communications Center were estimated using ACAM and are summarized in Table 3-8 (construction) and Table 3-9 (operation).

## SECTION THREE Affected Environment and Environmental Consequences

**Table 3-8. Communications Center Construction Air Emissions**

Criteria Pollutants	Denver AQCR Total Emissions <sup>1</sup> (tpy)	Construction Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold (tpy)	Exceeds Threshold? (Yes/No)
NO <sub>x</sub>	112,785	11.99 (15.93 <sup>3</sup> )	0.0106	No	100	No
SO <sub>x</sub>	69,350	1.479 (1.94 <sup>3</sup> )	0.0021	N/A <sup>4</sup>	N/A <sup>4</sup>	N/A <sup>4</sup>
VOCs	167,900	1.42 (1.89 <sup>3</sup> )	0.0008	No	100	No
CO	678,170	8.99 (12.13 <sup>3</sup> )	0.0013	No	100	No
PM <sub>10</sub>	32,156	4.14 (6.57 <sup>3</sup> )	0.0129	No	100	No

<sup>1</sup>Source: (CAQCC, 2001a, 2001b, 2001c)

<sup>2</sup>Source: 40 CFR 93.153(b)(1)

<sup>3</sup>Numbers represent emissions under Alternative 1

<sup>4</sup>There is no regionally significant or applicable thresholds for SO<sub>x</sub> because the Metropolitan Denver AQCR is in attainment for this pollutant.

tpy= tons per year

**Table 3-9. Communications Center Operation Air Emissions**

Criteria Pollutants	Denver AQCR Total Emissions <sup>1</sup> (tpy)	Operation Emissions (tpy)	Percent of AQCR Emissions	Regionally Significant? (Yes/No)	Applicable Threshold (tpy)	Exceeds Threshold? (Yes/No)
NO <sub>x</sub>	112,785	0.32 (0.41 <sup>3</sup> )	0.0002	No	100	No
SO <sub>x</sub>	69,350	0.00 (0.00 <sup>3</sup> )	0	N/A <sup>4</sup>	N/A <sup>4</sup>	N/A <sup>4</sup>
VOCs	167,900	0.24 (0.25 <sup>3</sup> )	0	No	100	No
CO	678,170	0.15 (0.19 <sup>3</sup> )	0	No	100	No
PM <sub>10</sub>	32,156	0.02 (0.03 <sup>3</sup> )	0	No	100	No

<sup>1</sup>Source: (CAQCC, 2001a, 2001b, 2001c)

<sup>2</sup>Source: 40 CFR 93.153(b)(1)

<sup>3</sup>Numbers represent emissions under Alternative 1

<sup>4</sup>There is no regionally significant or applicable thresholds for SO<sub>x</sub> because the Metropolitan Denver AQCR is in attainment for this pollutant.

tpy = tons per year

### ***Air Conformity Analysis for the Proposed Action***

The estimated values for CO, VOC, NO<sub>x</sub>, SO<sub>x</sub>, and PM<sub>10</sub> were determined to be less than the USEPA *de minimus* values and less than 10 percent of the Denver AQCR emission inventory. Therefore, a conformity determination is not required.

### ***No Action***

Selecting the No Action Alternative would result in no impacts to ambient air quality conditions in the project area or surrounding areas since no construction activities would be undertaken. Ambient air quality conditions would remain as described in Section 3.3.1.



***Alternative 1***

Alternative 1, which would entail constructing the Communications Center at an alternative location on base, would result in slightly higher air quality impacts than the Proposed Action as shown in Table 3-8 and Table 3-9.

***Alternative 2***

Alternative 2, which would entail constructing the Communications Center at an alternative location on base, and would result in virtually the same air impacts as the Proposed Action.

**3.4 NOISE**

Noise is defined as unwanted sound. Human response to noise is subjective and can vary greatly from person to person. Factors that can influence an individual's response to noise include the magnitude of the noise as a function of frequency and time pattern. The amount of background noise present before an intruding noise occurs, and the nature of the work or activity (e.g. sleeping) that the noise affects, can also influence a person's level of annoyance.

The unit used to measure the loudness of noise is the decibel (dB). Most community noise standards utilize A-weighted decibels as the measure of noise, as it provides a high degree of correlation with human annoyance and health effects. A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to functioning of the human ear.

The Air Installation Compatible Use Zone (AICUZ) program was initially established by DoD in response to the Noise Control Act of 1972 to promote an environment free from noise that jeopardizes public health or welfare. The noise zones and the accident potential zones together form the AICUZ for an air installation. AICUZ also serves to protect Air Force airfields from encroachment and incompatible land development. The AICUZ will be referenced throughout this section.

**3.4.1 Affected Environment**

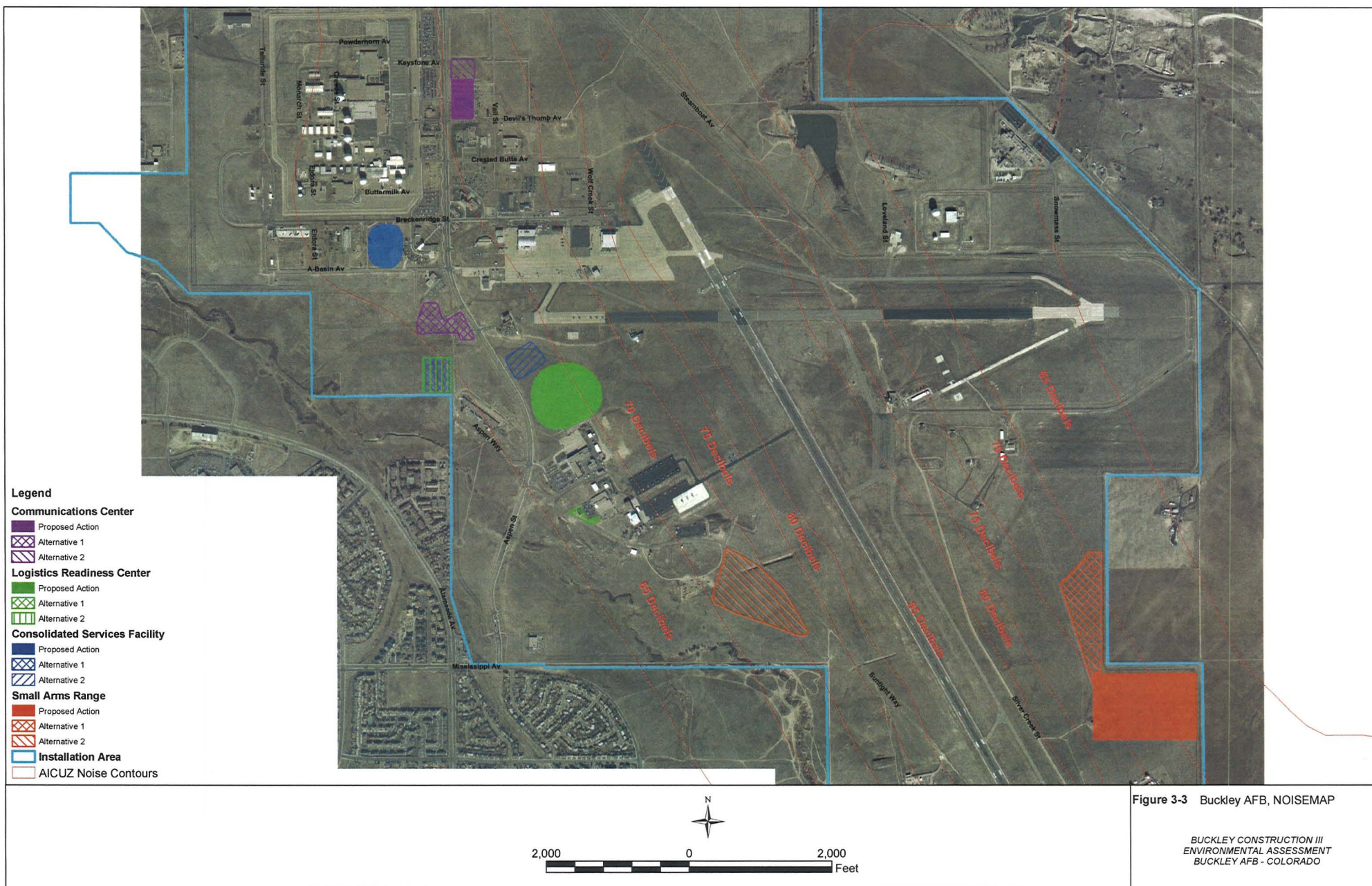
The DoD uses the NOISEMAP computerized day-night average A-weighted Sound Level (DNL) modeling program to produce contours showing noise levels generated by aircraft operations (Figure 3-3). Existing noise conditions on Buckley AFB are predominantly influenced by the operational activities of aircraft and by the test run-ups of aircraft engines. Figure 3-3 can be referenced throughout the following sections for noise contours on base. Daily activities range from 65 to 80 dB for a typical busy day at Buckley AFB.

**3.4.1.1 Small Arms Range*****Proposed Action***

The Proposed Action location for the Small Arms Range would be located northeast of Silver Creek Street in an AICUZ of 65-75 dB (Buckley AFB, 2002). Occupants and visitors of the facility would not encounter average dB levels over 75 dB within the area.

***No Action***

Noise levels would remain unchanged as a result of the No Action Alternative.



## **SECTION THREE**    **Affected Environment and Environmental Consequences**

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## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Alternative 1***

The Alternative 1 location for the Small Arms Range of the completed building and structures would be in an AICUZ-DNL of 65-70 dB (Buckley AFB, 2002). Occupants and visitors of the facility should not encounter average dB levels over 70 dB at the Proposed Action location.

### ***Alternative 2***

The Alternative 2 location for the Small Arms Range completed building and structures would be in an AICUZ-DNL of 70-75 dB (Buckley AFB, 2002). Occupants and visitors of the facility should not encounter average dB levels over 75 dB at the Alternative 2 location.

#### ***3.4.1.2 Logistics Readiness Complex***

##### ***Proposed Action***

The Proposed Action site would be located east of Aspen Street in an AICUZ of 65-70 dB. Occupants and visitors of the facility would not encounter average dB levels over 70 (Buckley AFB, 2002).

##### ***No Action***

Noise levels would remain unchanged as a result of the No Action Alternative.

### ***Alternative 1***

The Alternative 1 location for the Logistics Readiness Complex would be situated on the northeast side of Sunlight Way, in an AICUZ of 65 dB (Buckley AFB, 2002). Occupants and visitors of the facility would not encounter average dB levels over 65.

### ***Alternative 2***

The Alternative 2 location for the Logistics Readiness Complex would be situated west of Aspen Way and southwest of the new Wing Headquarters, in an AICUZ of 65 dB or less (Buckley AFB, 2002). Occupants and visitors of the facility would not encounter average dB levels over 65.

#### ***3.4.1.3 Consolidated Services Facility***

##### ***Proposed Action***

The Proposed Action location is located south of Breckenridge Avenue and north of A-Basin Avenue, in an AICUZ of 65 db and less (Buckley AFB, 2002). Occupants and visitors of the facility will not encounter average dB levels over 65.

##### ***No Action***

Noise levels would remain unchanged as a result of the No Action Alternative.



## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Alternative 1***

The Alternative 1 location for the Consolidated Services Facility would be west of Aspen Way and southwest of the new Wing headquarters building, in an AICUZ of 65 dB and less. Occupants and visitors of the facility would not encounter average dB levels over 65 dB or less (Buckley AFB, 2002).

### ***Alternative 2***

The Alternative 2 location for the Consolidated Services Facility is located east of Aspen Street, and south of Building 806, in an AICUZ of 65 dB or less (Buckley AFB, 2002). Occupants and visitors of the facility will not encounter average dB levels over 65 dB or less.

#### ***3.4.1.4 Communications Center***

### ***Proposed Action***

The Proposed Action is an addition to the existing Communications Center facility, which is located within an AICUZ of 70 dB (Buckley AFB, 2002). It can be assumed that there would be no change in the dB levels that occupants and visitors of the facility would encounter at the existing facility.

### ***No Action***

Noise levels would remain unchanged as a result of the No Action Alternative.

### ***Alternative 1***

The Alternative 1 location of the Communications Center is located west of Aspen Street and south of Beaver Creek Street, in an AICUZ of 70 dB (Buckley AFB, 2002). Occupants and visitors of the facility will not encounter average dB levels over 70.

### ***Alternative 2***

Under Alternative 2, the existing Communications Center would be demolished and a new building would be constructed at the same location. The existing facility is located within an AICUZ of 70 dB (Buckley AFB, 2002).

## **3.4.2 Impacts**

Noise levels below DNL 65 dB are not considered constraints to development. However, once the noise level meets or exceeds the 65 dB level, different functions, such as residential, administrative, commercial, and recreational, have different thresholds at which Noise Level Reduction (NLR) measures are recommended for facility design or at which no construction is permitted. The ROI considered for noise includes the noise contour containing the proposed site and immediately adjacent areas (Figure 3-3). Impacts would be considered adverse if there are long-term increases in the number of people highly annoyed by the noise environment, noise-associated adverse health effects to individuals, or unacceptable increases to the noise environment for sensitive receptors. A sensitive receptor is any person or group of persons in an environment where low noise levels are expected, such as schools, day care centers, hospitals, and nursing homes.



## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

### ***3.4.2.1 Small Arms Range***

Noise impacts from the Proposed Action would primarily be from construction activities. Noise created from construction activities could have short-term, on- and off-site effects. Based on previous calculations, the highest calculated cumulative energy equivalent sound levels from construction activities are estimated to be 85 dB at 50 ft (15.2 m) from the center of the project site (Buckley AFB, 2004e). Noise levels at 50 ft (15.2 m) for some equipment used during construction and demolition activities are 80 dB for bulldozers, 83 dB for cranes, 85 dB for backhoes, and 91dB for trucks. The impacts from noise would vary according to the activity occurring on any given day, and impacts would cease when construction is completed. Nearby adjacent receptors may experience noise impacts from certain construction sites. However, noise impacts from the Proposed Action would not greatly increase ambient levels, would be short-term, and would discontinue after site grading and construction are complete. The effects of noise during construction of the Small Arms Range are expected to be moderate and would be consistent with acceptable noise levels on Buckley AFB (Buckley AFB, 2004e). These noise impacts could be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (between 7:00 AM and 5:00 PM).

Noise levels produced from the indoor fully contained Small Arms Range would be similar for the Proposed Action or alternative locations. Noise levels within the indoor firing range would be extensive and hearing protection would be required; however, noise would be abated with the incorporation of unique baffling. The range's shooting lanes shall be acoustically shielded to avoid noise levels exceeding 60 dB outside the structure at a distance of 10 ft (3 m) from the exterior wall. The same noise limit shall be required at the exterior of the CATM Building to limit distracting noise from the range that would impact the classroom and general administrative areas (Buckley AFB, 2004b).

Operations occurring at the Grenade Launcher Range would occur during the day. Distance and shielding from the Buckley AFB property boundary shall be considered to ensure daytime noise limits are maintained for the site (Buckley AFB, 2004b). Noise generated from the range would not exceed that required for hearing protection (85 dB). Noise from grenade launching is expected to be minimal as the grenades that are fired are blanks and do have live ammunition that detonate upon ground surface impact.

This impact section analyzes the AICUZ and noise that occupants and visitors would encounter from the surrounding site location and area.

### ***Proposed Action***

There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of the Proposed Action.

### ***No Action***

Under the No Action Alternative, noise would remain at current levels. No change in noise impacts would occur.

### ***Alternative 1***

There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 1.

***Alternative 2***

There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 2.

***3.4.2.2 Logistics Readiness Complex***

Noise impacts from the Proposed Action would primarily be from construction activities. Noise created from construction activities could have short-term on- and off-site effects. Based on previous calculations, the highest calculated cumulative energy equivalent sound levels from construction activities are estimated to be 85 dB at 50 ft (15.2 m) from the center of the project site (Buckley AFB, 2004e). Noise levels at 50 ft (15.2 m) for some equipment used during construction and demolition activities are 80 dB for bulldozers, 83 dB for cranes, 85 dB for backhoes, and 91 dB for trucks. The impacts from noise would vary according to the activity occurring on any given day, and impacts would cease when construction is completed. Nearby adjacent receptors may experience noise impacts from certain construction sites. However, noise impacts from the Proposed Action would not greatly increase ambient levels, would be short-term, and would discontinue after site grading and construction are complete. The effects of noise during construction of the Logistics Readiness Complex are expected to be moderate and would be consistent with acceptable noise levels on Buckley AFB (Buckley AFB, 2004e). These noise impacts could be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (between 7:00 AM and 5:00 PM).

This impact section analyzes the AICUZ and noise that occupants and visitors would encounter from the surrounding site location and area.

***Proposed Action***

The AICUZ study indicates that the proposed site is noise rated between 65-70 dB, a range that is compliant with USAF regulations for this type of function. Therefore, noise impacts are not expected from the Proposed Action location for the Logistics Readiness Complex (Buckley AFB, 2004c). There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location.

***No Action***

Under the No Action Alternative, noise would remain at current levels. No change in noise impacts would occur.

***Alternative 1***

There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 1.

***Alternative 2***

There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 2.

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

### ***3.4.2.3 Consolidated Services Facility***

Noise impacts from the Proposed Action would primarily be from construction activities. Noise created from construction activities could have short-term on- and off-site effects. Based on previous calculations, the highest calculated cumulative energy equivalent sound levels from construction activities are estimated to be 85 dB at 50 ft (15.2 m) from the center of the project site (Buckley AFB, 2004e). Noise levels at 50 ft (15.2 m) for some equipment used during construction and demolition activities are 80 dB for bulldozers, 83 dB for cranes, 85 dB for backhoes, and 91dB for trucks. The impacts from noise would vary according to the activity occurring on any given day, and impacts would cease when construction is completed. Nearby adjacent receptors may experience noise impacts from certain construction sites. However, noise impacts from the Proposed Action would not greatly increase ambient levels, would be short-term, and would discontinue after site grading and construction are complete. The effects of noise during construction of the Consolidated Services Facility are expected to be moderate and would be consistent with acceptable noise levels on Buckley AFB (Buckley AFB, 2004e). These noise impacts could be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (between 7:00 AM and 5:00 PM).

This impact section analyzes the AICUZ and noise that occupants and visitors would encounter from the surrounding site location and area.

### ***Proposed Action***

The AICUZ study indicates that the proposed site is noise rated between 65 dB or less, a range that is compliant with USAF regulations for this type of function. There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are not expected from the Proposed Action location for the Consolidated Services Facility.

### ***No Action***

Under the No Action Alternative, noise would remain at current levels. No change in noise impacts would occur.

### ***Alternative 1***

There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 1.

### ***Alternative 2***

There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 2.

### ***3.4.2.4 Communications Center***

Noise impacts from the Proposed Action would primarily be from construction activities. Noise created from construction activities could have short-term on- and off-site effects. Based on previous calculations, the highest calculated cumulative energy equivalent sound levels from construction activities are estimated to be 85 dB at 50 ft (15.2 m) from the center of the project site (Buckley AFB, 2004e).

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

Noise levels at 50 ft (15.2 m) for some equipment used during construction and demolition activities are 80 dB for bulldozers, 83 dB for cranes, 85 dB for backhoes, and 91dB for trucks. The impacts from noise would vary according to the activity occurring on any given day, and impacts would cease when construction is completed. Nearby adjacent receptors may experience noise impacts from certain construction sites. However, noise impacts from the Proposed Action would not greatly increase ambient levels, would be short-term, and would discontinue after site grading and construction are complete. The effects of noise during construction of the Communications Center are expected to be moderate and would be consistent with acceptable noise levels on Buckley AFB (Buckley AFB, 2004e). These noise impacts could be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (between 7:00 AM and 5:00 PM).

This impact section will analyze the AICUZ and noise that occupants and visitors would encounter from the surrounding site location and area.

### ***Proposed Action***

Noise levels from the facility would not change; therefore, there would be no impacts to or from noise. There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location.

### ***No Action***

Under the No Action Alternative, noise would remain at current levels. No change in noise impacts would occur.

### ***Alternative 1***

There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 1.

### ***Alternative 2***

There would be no changes to noise as a result of the construction of Alternatives 2 and therefore no impacts. There are no sensitive receptors (e.g. schools, hospitals) immediately adjacent to the Proposed Action location. Therefore, noise impacts are expected to be negligible and short-term due to construction activities as a result of Alternative 2.

## **3.5      SOILS**

### **3.5.1    Affected Environment**

Buckley AFB is located within the Denver Basin on the Colorado Piedmont section of the Great Plains. This section is between the high plains in the east and the Front Range of the Rocky Mountains to the west. The major soil-mapping units present on Buckley AFB include the Fondis-Weld, Alluvial Land-Nunn, and Renohill-Buick-Little associations (Buckley AFB, 2004). Other areas on base have been identified as gravel pits, rock outcrop complexes, sandy alluvial land, and terrace escarpments.

The Fondis-Weld association mapping unit, comprised of the Fondis and Weld soil series, covers the most surface area at Buckley AFB. This association consists of deep loamy soils that formed mainly in silty material deposited by the wind (loess). The Fondis soils are gently sloping (1 to 5 percent slope), well-drained, fertile upland soils with a high water-holding capacity (0.25 inch per inch of soil) and moderately slow permeability (<0.63 inch per hour), and are susceptible to wind and water erosion. The Weld soil series consists of deep, well-drained, level to gently sloping (0 to 3 percent slope) soils that occur mainly in uplands. The Weld soils have a moderate rate of water intake and a high available water-holding capacity (0.20 to 0.25 inch per inch of soil). The most common soils in the Buckley AFB area are the Fondis silt loam and the Fondis-Colby silt loam (Buckley AFB, 2004).

The Alluvial Land-Nunn association consists of soils that have moderate permeability (0.63 inch per hour) and high water-holding capacity (0.20 inch per inch of soil), and are typically found along floodplains and terraces. On base, these soils are found along Tollgate Creek and Sand Creek. These soils are deep, nearly level, loamy, and sandy soils. These soils support crops well, but flood protection is needed to prevent erosion and gully formation. The most common soil types in this association are the Nunn-Bresser Ascalon and the Nunn Loam series, both of which have moderate permeability (0.63 to 6.3 inches per hour) and high water-holding capacity (0.20 inch per inch of soil). Both are typically well-drained, gently sloping soils (0 to 3 percent slope) (Buckley AFB, 2004).

The Renohill-Buick-Little association is comprised of moderately deep, well-drained, loamy to clayey soils. The most common soil series within this association are the Renohill-Little complex and the Renohill-Buick loam. Renohill soils are characterized as being moderately fertile with moderate internal drainage, steep slopes (3 to 30 percent slope), moderately slow to slow permeability (less than 0.63 inch per hour), and moderate water-holding capacity (0.15 inch per inch of soil) (Buckley AFB, 2004).

The sites described under the Proposed Action and action alternatives for the Small Arms Range, Consolidated Services Facility, Logistics Readiness Complex, and Communications Center are located within the Fondis soil association.

### **3.5.2 Impacts**

Conditions that have been identified that may require standard BMPs during construction include potential for erosion and expansive soils. Expansive soils are present at Buckley AFB. The altered volcanic ash layers that are common in most bedrock units underlying are composed primarily of swelling clay minerals. Soils that develop from and upon them tend to have elevated swell potential as well. Expansive soils and bedrock can repeatedly swell when wet and contract when dry, damaging man-made structures. However, engineering measures, such as installation of deep foundation systems, can decrease potential impacts from expansive soils.

#### **3.5.2.1 Small Arms Range**

##### ***Proposed Action***

Short-term direct effects on soils would be expected under the Proposed Action from construction activities such as grading, excavating, and recontouring of the soil. Coverage under the *NPDES General Permit for Storm Water Discharges from Construction Activities*, site-specific Sediment and Erosion Control Plans, and SWPPPs are required and would be prepared to minimize potential erosion and sedimentation during the construction phase. Soil removed during the project would be used as fill material or stock piled for use at other locations on Buckley AFB. Implementation of BMPs during construction activities would limit adverse indirect effects during construction. Fugitive dust generated



## **SECTION THREE      Affected Environment and Environmental Consequences**

---

during construction activities would be minimized by watering and soil stockpiling, thereby reducing the total amount of soil exposed to negligible levels.

Under the Proposed Action, approximately 1.13 acres (0.456 hectares) of soil classified as Fondis association would be permanently disturbed as a result of excavation for the below-ground floor or establishment of impervious surfaces. There would be no residual construction effects on sensitive soil types. No adverse impacts on soil resources are expected under the Proposed Action.

### ***No Action***

Under the No Action Alternative, no impacts to soils would occur because no grading or other earth-disturbing activities would occur.

### ***Alternative 1***

Impacts to soils at the Small Arms Range Alternative 1 location would be similar to those described in the Proposed Action.

### ***Alternative 2***

Impacts to soil at the Small Arms Range Alternative 2 location would be similar to those described in the Proposed Action.

## ***3.5.2.2 Logistics Readiness Complex***

### ***Proposed Action***

Short-term direct effects on soils would be expected under the Proposed Action from construction activities such as grading, excavating, and recontouring of the soil. Coverage under the *NPDES General Permit for Storm Water Discharges from Construction Activities*, site-specific Sediment and Erosion Control Plans, and SWPPPs are required and would be prepared to minimize potential erosion and sedimentation during the construction phase. Soil removed during the project would be used as fill material or stock piled for use at other locations on Buckley AFB. Implementation of BMPs during construction activities would limit adverse indirect effects during construction. Fugitive dust generated during construction activities would be minimized by watering and soil stockpiling, thereby reducing the total amount of soil exposed to negligible levels.

Under the Proposed Alternative, approximately 0.9 acres (0.362 hectares) of soil classified as Fondis and Buick loam would be permanently disturbed as a result of excavation for the below-ground floor or establishment of impervious surfaces. There would be no residual construction effects on sensitive soil types. No adverse impacts on soil resources are expected under the Proposed Action.

### ***No Action***

Under the No Action Alternative, no impacts to soils would occur because no grading or other earth-disturbing activities would occur.

## **SECTION THREE      Affected Environment and Environmental Consequences**

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### ***Alternative 1***

Impacts to soil at the Logistics Readiness Complex Alternative 1 location would be similar to those described in the Proposed Action.

### ***Alternative 2***

Impacts to soil at the Logistics Readiness Complex Alternative 2 location would be similar to those described in the Proposed Action.

### ***3.5.2.3 Consolidated Services Facility***

#### ***Proposed Action***

Short-term direct effects on soils would be expected under the Proposed Action from construction activities such as grading, excavating, and recontouring of the soil. Coverage under the *NPDES General Permit for Storm Water Discharges from Construction Activities*, site-specific Sediment and Erosion Control Plans, and SWPPPs are required and would be prepared to minimize potential erosion and sedimentation during the construction phase. Soil removed during the project would be used as fill material or stock piled for use at other locations on Buckley AFB. Implementation of BMPs during construction activities would limit adverse indirect effects during construction. Fugitive dust generated during construction activities would be minimized by watering and soil stockpiling, thereby reducing the total amount of soil exposed to negligible levels.

Under the Proposed Alternative, approximately 0.896 acres (0.362 hectares) of soil classified as Fondis would be permanently disturbed as a result of excavation for the below-ground floor or establishment of impervious surfaces. There would be no residual construction effects on sensitive soil types. No adverse impacts on soil resources are expected under the Proposed Action.

#### ***No Action***

Under the No Action Alternative, no impacts to soils would occur because no grading or other earth-disturbing activities would occur.

### ***Alternative 1***

Impacts to soil at the Consolidated Services Facility Alternative 1 location would be similar to those described in the Proposed Action.

### ***Alternative 2***

Impacts to soil at the Consolidated Services Facility Alternative 2 location would be similar to those described in the Proposed Action.

## **SECTION THREE      Affected Environment and Environmental Consequences**

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### **3.5.2.4    Communications Center**

#### ***Proposed Action***

Short-term direct effects on soils would be expected under the Proposed Action from construction activities such as grading, excavating, and recontouring of the soil. Coverage under the *NPDES General Permit for Storm Water Discharges from Construction Activities*, site-specific Sediment and Erosion Control Plans, and SWPPPs are required and would be prepared to minimize potential erosion and sedimentation during the construction phase. Soil removed during the project would be used as fill material or stock piled for use at other locations on Buckley AFB. Implementation of best BMPs during construction activities would limit adverse indirect effects during construction. Fugitive dust generated during construction activities would be minimized by watering and soil stockpiling, thereby reducing the total amount of soil exposed to negligible levels.

Under the Proposed Alternative, approximately 0.896 acres (0.362 hectares) of soil classified as Fondis would be permanently disturbed as a result of excavation for the below-ground floor or establishment of impervious surfaces. There would be no residual construction effects on sensitive soil types. No adverse impacts on soil resources are expected under the Proposed Action.

#### ***No Action***

Under the No Action Alternative, no impacts to soils would occur because no grading or other earth-disturbing activities would occur.

#### ***Alternative 1***

Impacts to soil at the Communications Center Alternative 1 location would be approximately 1.44 acres (0.58 hectares) of soil classified as Fondis would be permanently disturbed as a result of excavation for the below-ground floor or establishment of impervious surfaces. There would be no residual construction effects on sensitive soil types. No adverse impacts on soil resources are expected under the Proposed Action.

#### ***Alternative 2***

Impacts to soil at the Communications Center Alternative 2 location would be similar to those described in the Proposed Action.

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

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### **3.6 WATER RESOURCES**

#### **3.6.1 Affected Environment**

##### ***Surface Water***

The South Platte River, located approximately 15 miles (27.8 km) northwest of Buckley AFB, is the primary surface water drainage in the region. Several smaller intermittent tributaries located within or adjacent to Buckley AFB feed this drainage system. Off-base tributaries include Sand Creek to the north and Murphy Creek to the east (Figure 3-4). East Toll Gate Creek, an intermittent stream in the western section, and an old tributary of Murphy Creek are the only named tributaries that are present on the base. The most prominent surface water feature is Williams Lake, a reservoir located in the northeastern section of the installation (Buckley AFB, 2004).

In general, drainage flows in a northwest direction. Buckley AFB has extensive natural and manmade surface drainage as well as underground stormwater drainage lines. All drainage from the northern section of Buckley AFB discharges into Murphy Creek and Sand Creek to the north and east of the base; drainage from the southern and western section of the base discharges into East Toll Gate Creek (Buckley AFB, 2004).

##### ***Groundwater***

Buckley AFB is located within a groundwater basin known as the Denver Basin. There are four major bedrock aquifers that underlie Buckley AFB within the Denver Basin: the Denver, Upper Arapahoe, Lower Arapahoe, and Laramie-Fox Hills aquifers. These aquifers are separated by a bed of shale with low permeability and are located in zones of sandstones and siltstones (U.S.G.S., 1995).

Surficial aquifers at Buckley AFB are associated with present and ancestral surficial stream and river valleys. The aquifer systems are the result of alluvial deposition from erosion of upland bedrock areas. The alluvial aquifer identified on Buckley AFB is associated with Toll Gate and Sand creeks and consists of primarily coarse-grained materials. Groundwater is recharged to this aquifer through direct infiltration of precipitation and irrigation water and by lateral and upward seepage of groundwater. Groundwater is discharged from the alluvial aquifer through seepage to streams, evapotranspiration, downward seepage into underlying bedrock aquifers, and extraction via pumping wells. Groundwater flow in these surficial aquifers is generally toward the north-northwest along creekbeds, toward the South Platte River (Buckley AFB, 2004).

##### ***Stormwater***

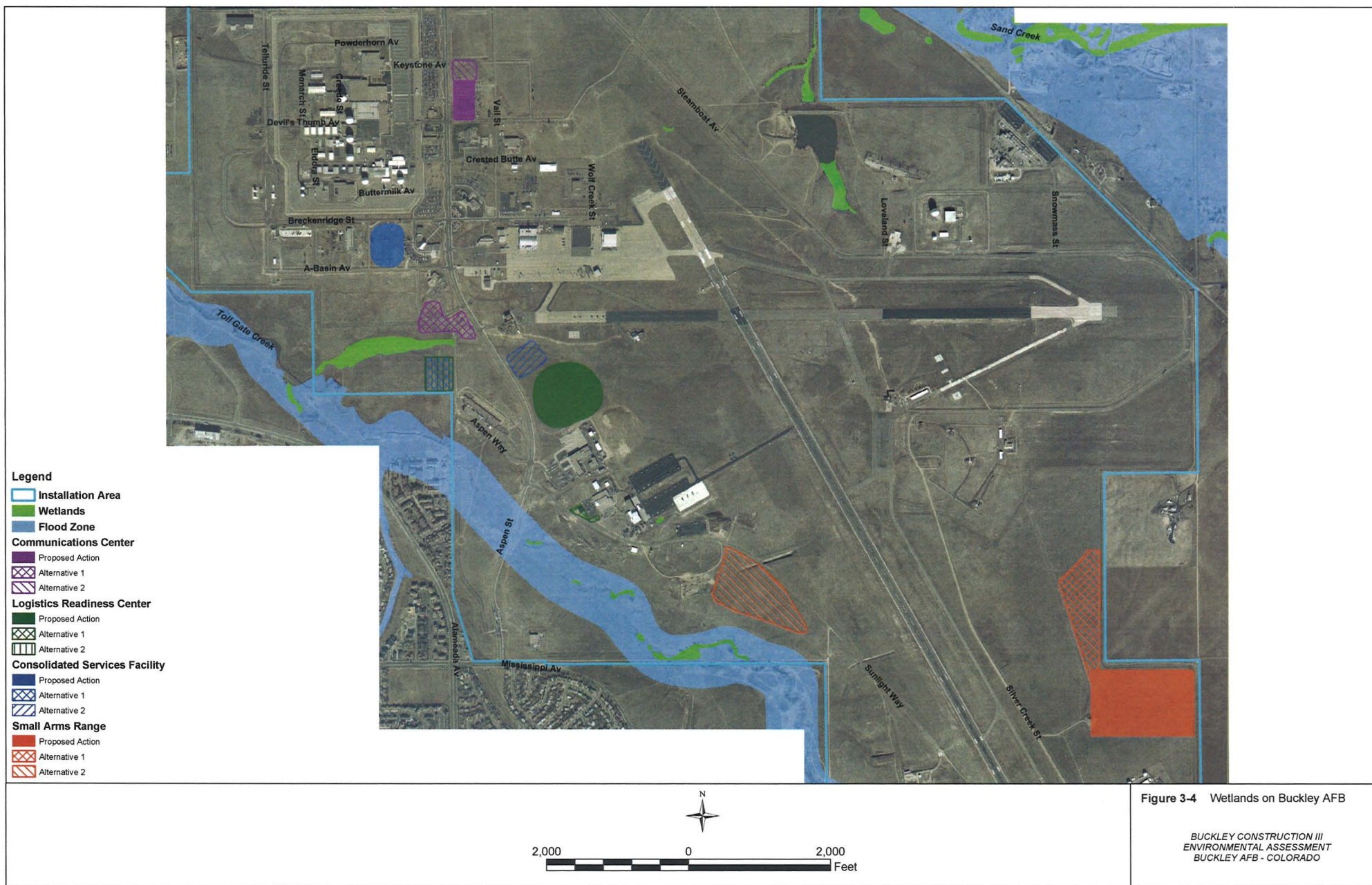
Stormwater throughout Buckley AFB is regulated under the USEPA NPDES Stormwater Multi-Sector General Permit for Industrial Activities (COR05A13F, 12/1/2003). Buckley also obtained coverage under the NPDES General Permit for Storm Water Discharges from Federal Facility Small Municipal Separate Storm Sewer Systems (MS4) in Colorado on April 9, 2004. Buckley AFB has implemented a SWPPP to ensure that stormwater conveyance devices and structures are maintained in good condition and that runoff is not contaminated by coming into contact with hazardous materials stored on-site (Buckley AFB, 2004e).

## **SECTION THREE**    **Affected Environment and Environmental Consequences**

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## **SECTION THREE**    **Affected Environment and Environmental Consequences**

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## **SECTION THREE**      **Affected Environment and Environmental Consequences**

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Stormwater is collected and transmitted through a system of surface ditches and channels. An underground storm drainage system has been installed around the runway, portions of the taxiways, and the hangars and facilities north of the main ramp. These structures direct stormwater to the adjoining areas of the city of Aurora, East Toll Gate Creek, or the stormwater detention pond located east of Aspen and south of Steamboat avenues (Buckley AFB, 2002).

There are two primary drainage basins: Sand Creek Basin and the East Toll Gate Creek Basin. To offset impacts from channel erosion in the East Toll Gate Creek, structures have been installed to detain surface flows and release them at a controlled rate (Buckley AFB, 2002).

### ***3.6.1.1 Small Arms Range***

The proposed Small Arms Range would consist of an approximately 9,785-ft<sup>2</sup> (909-m<sup>2</sup>) CATM facility immediately adjacent to an approximately 23,735-ft<sup>2</sup> (2,205-m<sup>2</sup>) fully contained, enclosed firing range. A parking area for approximately 52 vehicles would be included with the construction (Figure 2-2). Therefore, an increase of impervious surface for this complex would be approximately 49,120 ft<sup>2</sup> (4,563 m<sup>2</sup>) or 1.13 acres (0.456 hectares). This number would be the same for the Proposed Action and action alternatives.

#### ***Proposed Action***

The Proposed Action location is minimally sloped and drains to the north. Presently, there are no drainage improvements on the project site. However, the inclusion of impermeable surfaces on site would increase the volume of on-site generated storm drainage that would have to be managed prior to its outfall off site.

#### ***No Action***

Water resources would remain as they currently are under the No Action Alternative.

#### ***Alternative 1***

The Alternative 1 location is minimally sloped and drains to the north. Presently, there are no drainage improvements on the project site. However, the inclusion of impermeable surfaces on site would increase the volume of on-site generated storm drainage that would have to be managed prior to its outfall off site.

#### ***Alternative 2***

Presently, there are no drainage improvements on the Alternative 2 project site. However, the inclusion of impermeable surfaces on site would increase the volume of on-site generated storm drainage that would have to be managed prior to its outfall off site.

### ***3.6.1.2 Logistics Readiness Complex***

The proposed Logistics Readiness Complex would consist of an approximately 24,650-ft<sup>2</sup> (2,290-m<sup>2</sup>) warehouse with an adjacent single-story area for administrative functions and a parking area for approximately 48 vehicles that would be included with the construction (Figure 2-4). Therefore, an increase of impervious surfaces for this complex would be approximately 39,030 ft<sup>2</sup> (3,626 m<sup>2</sup>) or 0.9 acres (0.362 hectares). This number would be the same for the Proposed Action and action alternatives.

***Proposed Action***

Stormwater that collects on the proposed site of the Logistics Readiness Complex is transported to an open drainage ditch. Presently, there are no drainage improvements on the project site. However, the development of impermeable surfaces at this location would increase the volume of storm drainage generated on site that would have to be managed prior to its outfall off site.

***No Action***

Water resources would remain as they currently are under the No Action Alternative.

***Alternative 1***

The Logistics Readiness Complex Alternative 1 slopes to the west-southwest. Any drainage improvements present at the Logistics Readiness Complex Alternative 1 location would be associated with the existing structures, Modular 5 and Building 1000. However, the development of impermeable surfaces at this location would increase the volume of storm drainage generated on site that would have to be managed prior to its outfall.

***Alternative 2***

Alternative 2 slopes minimally to the northwest. The proposed site does not contain any drainage improvements. One of the primary storm drainages is located to the north of the Alternative 2 location with water flow to the west. However, the development of impermeable surfaces at this location would increase the volume of storm drainage generated on site that would have to be managed prior to its outfall.

***3.6.1.3 Consolidated Services Facility***

The proposed Consolidated Services Facility would have an area of disturbance approximately 41,535 ft<sup>2</sup> (3858 m<sup>2</sup>) (including the 14,101-ft<sup>2</sup> building and disturbed areas surrounding the building) (Figure 2-6). A parking area for approximately 84 vehicles would be included with the construction. Therefore, an increase of impervious surfaces for this complex would be approximately 66,735 ft<sup>2</sup> (6,200 m<sup>2</sup>) or 1.5 acres (0.607 hectares). This number would be the same for the Proposed Action and action alternatives.

***Proposed Action***

The Proposed Action site has minimal sloping. Existing surface stormwater flow drains to the south, where it discharges into an open drainage ditch. The Proposed Action location does not contain any drainage improvements. The development of impermeable surfaces at this location would increase the volume of storm drainage generated on site that would have to be managed prior to its outfall.

***No Action***

Water resources would remain as they currently are under the No Action Alternative.



## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Alternative 1***

Alternative 1 slopes minimally to the northwest. The proposed site does not contain any drainage improvements. One of the primary storm drainages is located to the north of the Alternative 1 location with water flow to the west. The development of impermeable surfaces on site would increase the volume of on-site generated storm drainage that would have to be detained prior to its outfall off site.

### ***Alternative 2***

Alternative 2 slopes minimally to the southwest. The proposed site does not contain any drainage improvements. One of the primary storm drainages is located to the south of the location with water flow to the west. The development of impermeable surfaces at this location would increase the volume of storm drainage generated on site that would have to be managed prior to its outfall.

#### ***3.6.1.4 Communications Center***

The proposed Communications Center would consist of an approximately 37,738-ft<sup>2</sup> (3,506-m<sup>2</sup>) building. A parking area for approximately 80 vehicles would be included with the construction. Therefore, an increase of impervious surfaces for this complex would be approximately 61,738 ft<sup>2</sup> (5,735 m<sup>2</sup>) or 1.42 acres (0.574 hectares). This number would be the same for the Proposed Action and action alternatives.

### ***Proposed Action***

The Proposed Action would include construction of an addition to the existing facility, including additional parking for employees transferred to the facility. Improvements to drainages have occurred at the existing facility. However, construction of the addition and parking would increase impervious surfaces.

### ***No Action***

Water resources would remain as they currently are under the No Action Alternative.

### ***Alternative 1***

The Alternative 1 location does not contain any drainage improvements. One of the primary storm drainages is located to the south of the location with water flow to the west. The development of impermeable surfaces at this location would increase the volume of storm drainage generated on-site that would have to be managed prior to its outfall.

### ***Alternative 2***

Under Alternative 2, the existing Communication Center would be demolished and a new building would be constructed at the same location. Drainage improvements associated with the existing structure would be utilized to the extent possible for Alternative 2. However, impermeable surfaces would still be increased, and would increase the volume of storm drainage generated on site that would have to be managed prior to its outfall off site.



## **SECTION THREE**      **Affected Environment and Environmental Consequences**

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### **3.6.2 Impacts**

Depth to groundwater is greater than 20 ft (6.1m) below ground surface. Therefore, it is not expected that groundwater would be impacted during construction activities under the Proposed Action, No Action Alternative, or action alternatives and will not be further discussed.

Potential impacts would include disruption of natural water flows, contamination entering stormwater discharge, or heavy sediment loading from construction activities. Preparing and implementing a SWPPP can minimize adverse impacts. These plans provide construction and post-construction BMPs intended to control and manage the loading of sediment and other pollutants to levels that would minimize degradation of downstream water quality. In addition to a SWPPP, several of the proposed sites are bounded by existing roadways. The roadways provide stormwater drainage through natural overland surface runoff. Man-made engineered drains, culverts and above and underground piping systems will also assist in reducing potential impacts.

Because the proposed construction sites are distributed throughout the facility (on the east and west sides of the base) potential impacts to all three of the streams that receive stormwater runoff from Buckley AFB could result from the Proposed Action alternatives. The increase in stormwater volume would result from the reduction of pervious surfaces on the base as a consequence of building, parking lot, and walking path construction.

Areas of impervious surface would be increased with completion of construction of the facilities and associated structures. To calculate the area of impervious surface for each facility, parking lot areas were estimated at 300 ft<sup>2</sup> (27.9 m<sup>2</sup>) per parking space, which includes turning areas and aisles between rows. Total estimates may include some areas that may be landscaped, but are included until final design for landscaping has been completed.

There are a total of approximately 3,200 acres (1,295 hectares) of drainage area at Buckley AFB, of which 525 acres (212.5 hectares), or 16.4 percent, are impervious surface. The Proposed Actions would increase the impervious surfaces at Buckley AFB by approximately 3.82 acres (1.55 hectares). This would increase the total impervious surface at the base to a total of 529 acres (214.1 hectares), an increase of 0.7 percent. Once construction projects are completed, an increase of approximately 3.82 acres (1.55 hectares) of impervious surfaces is expected. Assuming an annual precipitation rate of 16.3 inches per year and no losses due to evaporation, the anticipated increase in stormwater due to the Proposed Action would be approximately 1.69 million gallons per year. The exact direction of increased runoff is not currently known (per 40 CFR 1502.22) and would need to be assessed in further detail through site-specific drainage engineering plans that would be developed for construction projects. The increase of impervious surfaces is shown in Table 3-10.

BMPs can be implemented to reduce runoff peak flows from the increased impervious surfaces, including:

- Using porous pavement design for portions of parking lots
- Minimizing contiguous areas of impervious surfaces by using landscaping, grass buffer strips, or grass-lined swales and directing runoff from a site to these features

BMPs can also be implemented for each Proposed Action or action alternative to decrease sedimentation by erosion. Common BMPs for construction and demolition activities would be followed to minimize erosion. Preventive BMPs may include the following:

- Limit stockpiling of materials onsite
- Manage stockpiled materials to minimize the time between delivery and use

## SECTION THREE Affected Environment and Environmental Consequences

- Cover stockpiled materials with tarps
- Install snow or silt fences around material stockpiles, stormwater drainage routes, culverts, and drains
- Install hay or fabric filters, netting, and mulching around material stockpiles, stormwater drainage routes, culverts, and drains

**Table 3-10. Increased Impervious Surface Calculations**

Project	Building Area Impervious Surfaces (ft <sup>2</sup> )	Parking Lot Impervious Surfaces (ft <sup>2</sup> ) <sup>1</sup>	Total Impervious Surfaces (ft <sup>2</sup> )	Increased Acreage (hectares)
Small Arms Range Proposed Action	33,500	15,600	49,120	1.128 (0.456)
Small Arms Range Alternative 1	33,500	15,600	49,120	1.128 (0.456)
Small Arms Range Alternative 2	33,500	15,600	49,120	1.128 (0.456)
Logistics Readiness Complex Proposed Action	24,650	14,400	39,050	0.896 (0.362)
Logistics Readiness Complex Alternative 1	24,650	14,400	39,050	0.896 (0.362)
Logistics Readiness Complex Alternative 2	24,650	14,400	39,050	0.896 (0.362)
Consolidated Services Facility Proposed Action	41,535	25,200	66,735	1.5 (0.607)
Consolidated Services Facility Alternative 1	41,535	25,200	66,735	1.5 (0.607)
Consolidated Services Facility Alternative 2	41,535	25,200	66,735	1.5 (0.607)
Communications Center Proposed Action	37,738	24,000	61,738	1.42 (0.574)
Communications Center Alternative 1	62,704	24,000	86,704	1.99 (.80)
Communications Center Alternative 2	37,738	24,000	61,738	1.42 (0.574)

<sup>1</sup>Parking lot area is estimated on 300 ft<sup>2</sup> per parking space, including turning areas.

### 3.6.2.1 Small Arms Range

#### *Proposed Action*

Construction of the Small Arms Range under the Proposed Action would increase impermeable surfaces by approximately 49,120 ft<sup>2</sup> (4,563 m<sup>2</sup>) or 1.128 acres (0.456 hectares). Buckley AFB has extensive natural and man-made surface drainage, as well as underground storm drainage lines, that would convey increased stormwater volumes created from increased impervious surfaces. Stormwater drainage systems associated with the building construction would be constructed in order to handle the increased runoff; the BMPs discussed previously would also be implemented, as appropriate. The increased amount of

## **SECTION THREE      Affected Environment and Environmental Consequences**

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impervious surface is expected to have negligible, long-term, adverse impacts to surface water at Buckley AFB.

### ***No Action***

The No Action Alternative would have no impacts on water resources.

### ***Alternative 1***

Impacts to surface water under Alternative 1 for the Small Arms Range are expected to be the same as the Proposed Action.

### ***Alternative 2***

Impacts to surface water under Alternative 2 for the Small Arms Range are expected to be the same as the Proposed Action.

### ***3.6.2.2 Logistics Readiness Complex***

#### ***Proposed Action***

Construction of the Logistics Readiness Complex under the Proposed Action would increase impermeable surfaces by approximately 39,050 ft<sup>2</sup> (3,627 m<sup>2</sup>) or 0.896 acres (0.362 hectares). Buckley AFB has extensive natural and man-made surface drainage, as well as underground storm drainage lines, that would convey increased stormwater volumes created from increased impervious surfaces. In addition, stormwater drainage systems associated with the building construction would be constructed in order to handle the increased runoff. The increased amount of impervious surface is expected to have negligible, long-term, adverse impacts to surface water at Buckley AFB.

#### ***No Action***

The No Action Alternative would have no impacts on water resources.

#### ***Alternative 1***

Impacts to surface water under Alternative 1 for the Logistics Readiness Complex are expected to be the same as the Proposed Action.

#### ***Alternative 2***

Impacts to surface water under Alternative 2 for the Logistics Readiness Complex are expected to be the same as the Proposed Action.

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

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### ***3.6.2.3 Consolidated Services Facility***

#### ***Proposed Action***

Construction of the Proposed Action would increase impermeable surfaces by approximately 66,735 ft<sup>2</sup> (6,200 m<sup>2</sup>) or 1.5 acres (0.607 hectares). Buckley AFB has extensive natural and man-made surface drainage, as well as underground storm drainage lines, that would convey increased stormwater volumes created from increased impervious surfaces. In addition, stormwater drainage systems associated with the building construction would be constructed in order to handle the increased runoff. The increased amount of impervious surface is expected to have negligible, long-term, adverse impacts to surface water at Buckley AFB.

#### ***No Action***

The No Action Alternative would have no impacts on water resources.

#### ***Alternative 1***

Impacts to surface water under Alternative 1 for the Consolidated Services Facility are expected to be the same as the Proposed Action.

#### ***Alternative 2***

Impacts to surface water under Alternative 2 for the Consolidated Services Facility are expected to be the same as the Proposed Action.

### ***3.6.2.4 Communications Center***

#### ***Proposed Action***

Construction of the Proposed Action would increase impermeable surfaces by approximately 61,738 ft<sup>2</sup> (5,735 m<sup>2</sup>) or 1.42 acres (0.574 hectares). Buckley AFB has extensive natural and man-made surface drainage, as well as underground storm drainage lines, that would convey increased stormwater volumes created from increased impervious surfaces. In addition, stormwater drainage systems associated with the building construction will be constructed in order to handle the increased runoff. The increased amount of impervious surface is expected to have negligible, long-term, adverse impacts to surface water at Buckley AFB.

#### ***No Action***

The No Action Alternative would have no impacts on water resources.

#### ***Alternative 1***

Impacts to surface water under Alternative 1 for the Communications Center are expected to be slightly larger than the Proposed Alternative because an entirely new structure would be built at the Alternative 1 location. Construction of Alternative 1 would increase impermeable surfaces by approximately 86,704 ft<sup>2</sup> (8,055 m<sup>2</sup>) or 1.99 acres (0.80 hectares).

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

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### ***Alternative 2***

Impacts to surface water under Alternative 2 for the Communications Center are expected to be the same as the Proposed Action.

### **3.7 BIOLOGICAL RESOURCES**

This section describes native and non-native wildlife, wetlands, and vegetation, as well as threatened, endangered, and other sensitive species known or likely to occur at Buckley AFB. This analysis is based on site visits conducted in July and November 2004, as well as literature and previous surveys conducted at Buckley AFB.

Impacts were assessed by comparison of the footprint of the facilities for each proposed project and their alternatives to the biological resources described under the Affected Environment section for each resource. Impacts are described by intensity (minor/moderate), timing (construction vs. operation), mode of action (direct/indirect), and duration of impact (short-term/long-term), where applicable. The measures proposed to offset impacts are based on standard methods and actions recommended by wildlife management agencies and organizations. In order to quantify impacts resulting from the replacement of native habitat with a proposed facility, it was assumed that the actual construction area would be four times greater than the proposed building footprint to accommodate parking lots, access roads, landscaped areas, and equipment staging.

#### **3.7.1 Vegetation**

This section describes the affected environment and impacts to vegetation resources for the Proposed Actions and their alternatives.

##### ***3.7.1.1 Affected Environment***

Buckley AFB is located in the Great Plains-Palouse Dry Steppe Province Ecoregion (Bailey, 1995), an ecoregion also classified as shortgrass prairie (Buckley AFB, 2004). The *Draft Integrated Natural Resource Management Plan* (Buckley AFB, 2004) identifies four vegetation types occurring at Buckley AFB, including:

- Midgrass prairie comprised of blue grama, western wheatgrass, crested wheatgrass
- Riparian corridors consisting of bottomland meadows or cottonwood/willow habitat
- Weedy/disturbed areas
- Landscaped areas, including turfgrass

Midgrass prairie is dominated by native grass species such as blue grama (*Bouteloua* sp.) and western wheatgrass (*Agropyron smithii*), and buffalo grass (*Buchloe dactyloides*). Other common grasses include tumble grass (*Schedonnardus paniculatus*) and three-awn (*Aristida fendleriana* and *A. longiseta*). Fringed brome grass (*Bromus ciliatus*) dominates depressions and gullies within the mixed grass prairie. Areas dominated by crested wheatgrass, a non-native grass species historically used to revegetate disturbed ground, occur throughout the base. Herbaceous species associated with mixed grass prairie are scarlet globe mallow (*Spaeralcea coccinea*), prickly pear (*Opuntia macrohiza*), rabbitbrush (*Chrysothamnus nauseosus*), and snakeweed (*Gutierrezia sarothrae*).

Riparian habitats are characterized as bottomland meadows or cottonwood/willow. Bottomland meadows occur within the mixed grass prairie and may support wetlands. Fringed brome grass dominates the



## **SECTION THREE      Affected Environment and Environmental Consequences**

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bottomland meadows and is generally associated with moist soil conditions (Buckley AFB, 2004). Plains cottonwood (*Populus deltoides*)/willow (*Salix* sp.) communities dominate riparian corridors. Cottonwood/willow habitat does not occur within the Proposed Action or action alternative sites.

Areas dominated by weeds have been disturbed by past or current ground-disturbing construction activities or past grazing activities. Weed species observed include fringed sagewort (*Artemisia frigida*), cheatgrass (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), Canada thistle (*Cirsium arvense*), and Turssian thistle (*Salsola kali*). Noxious weeds observed at Buckley AFB include Dalmation toadflax (*Linaria genistifolia* ssp. *dalmatica*) and leafy spurge (*Euphorbia esula*) (Buckley AFB, 2004).

Landscaped areas consist of turf grass (Kentucky bluegrass, common Bermuda grass, wintergrass, and Alta fescue mixes). Ornamental tree species planted on Buckley AFB consist of green ash (*Fraxinus pennsylvanica*), honey locust (*Gleditsia triacanthos*), Colorado blue spruce (*Picea pungens*), ponderosa pine (*Pinus ponderosa*), Siberian elm (*Ulmus pumila*), Gambel oak (*Quercus gambelii*), and buffalo juniper (*Juniperus sabina*). Additionally, shelterbelts consisting of several rows of shrubs and deciduous trees are used along property boundaries to filter noise, high winds, and dust from high traffic areas.

### **3.7.1.2 Small Arms Range**

Dominant vegetation of the Proposed Action and Alternative 1 sites consist of good quality mixed grass prairie with some weedy species interspersed; a juniper shelterbelt lines the eastern perimeter of Alternative 1. Alternative 2 is of low quality mixed grass prairie dominated by crested wheatgrass, especially adjacent to the road.

### **3.7.1.3 Logistics Readiness Complex**

The vegetation at the Proposed Action site is dominated by crested wheatgrass. Alternative 1 is a disturbed parcel of land with weedy vegetation located adjacent to a parking lot. The vegetation at Alternative 2 is similar to the Proposed Action, though a shelterbelt of juniper and deciduous shrubs runs through the site.

### **3.7.1.4 Consolidated Services Facility**

The Proposed Action site is characterized by mostly weedy species with three mature ponderosa pine and eight Siberian elm trees planted at the southern end of the site. The vegetation of the Alternative 1 site is dominated by crested wheatgrass, with a shelterbelt of juniper and deciduous shrubs bisecting the site. Grading would be required for implementation of Alternative 2, which is characterized as bottomland meadow with mixed grass prairie, which shows some past disturbance by the presence of berms and concrete rubble.

### **3.7.1.5 Communications Center**

The vegetation at the site of the Proposed Action and Alternative 2 sites consists primarily of weedy species within a prairie dog colony. Alternative 1 is dominated by mixed grass with a shelterbelt running north-south through the site.

### **3.7.1.6 Impacts**

This section describes impacts to vegetation from construction of the Proposed Action or alternatives for each of the four facilities. The ROI consists of the proposed footprint of the facility. In general, impacts

## **SECTION THREE      Affected Environment and Environmental Consequences**

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to vegetation would be construction related, since operation of the facilities would have no direct or indirect effects on vegetation. Additional impacts to existing vegetation would occur from any required utility connection to a proposed facility during construction. Construction impacts to vegetation would be generally direct and long-term in duration, though short-term impacts are discussed when applicable. Impacts to vegetation are generally categorized by their mode of action (direct/indirect) and intensity (minor/moderate) depending on the existing condition of each site. Adverse impacts to vegetation would be reduced by revegetating disturbed areas not planned for buildings, parking lots, streets, or landscaping. The areas would be seeded with native vegetation as soon as possible after construction is complete.

### ***3.7.1.7 Small Arms Range***

Approximately 1.13 acres (0.46 hectares) of grassland vegetation would be removed for construction of the Small Arms Range.

#### ***Proposed Action***

Under the Proposed Action, direct and moderate adverse impacts to mixed grass prairie would primarily occur from replacement of native vegetation with the proposed facility.

#### ***No Action***

No adverse impacts to vegetation are expected under the No Action Alternative as no proposed facilities would be constructed or operated.

#### ***Alternative 1***

Impacts would be similar to those described for the Proposed Action for this facility.

#### ***Alternative 2***

Impacts would be similar to those described for the Proposed Action for this facility.

### ***3.7.1.8 Logistics Readiness Complex***

Approximately 0.90 acres (0.36 hectares) of vegetation would be removed or disturbed for construction of this facility.

#### ***Proposed Action***

Since this site shows evidence of previous disturbance by the abundance of crested wheatgrass growing on the site, direct adverse and minor impacts to vegetation are expected under the Proposed Action.

#### ***No Action***

No adverse impacts to vegetation are expected under the No Action Alternative as no proposed facilities would be constructed or operated.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Alternative 1***

Since the Alternative 1 site would be located in a weedy prairie dog colony adjacent to a parking lot, adverse impacts from replacement of vegetation with the proposed facility would be direct adverse and minor.

### ***Alternative 2***

Alternative 2 would result in direct adverse impacts from replacement of relatively disturbed grassland vegetation with the facility.

#### ***3.7.1.9 Consolidated Services Facility***

Direct and long-term adverse impacts to vegetation would result from removal of 1.5 acres (0.6 hectares) of vegetation for construction of this facility.

#### ***Proposed Action***

Direct and minor adverse impacts to vegetation are expected; the site is weedy and shows evidence of past disturbance.

#### ***No Action***

No adverse impacts to vegetation are expected under the No Action Alternative as no proposed facilities would be constructed or operated.

### ***Alternative 1***

Direct adverse impacts from replacement of relatively disturbed grassland vegetation, as well as the removal of shelterbelt trees, would occur.

### ***Alternative 2***

Impacts would be similar to those described for the Proposed Action for this facility as vegetation on the site is relatively disturbed.

#### ***3.7.1.10 Communications Center***

Approximately 1.42 acres (0.57 hectares) of vegetation would be removed or disturbed for construction of this facility.

#### ***Proposed Action***

Direct and minor adverse impacts to vegetation are expected as the site is weedy and has been previously disturbed.

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

### ***No Action***

No adverse impacts to vegetation are expected under the No Action Alternative as no proposed facilities would be constructed or operated.

### ***Alternative 1***

Implementation of Alternative 1 would result in direct and minor adverse impacts to grassland and shelterbelt vegetation, resulting in slightly larger impacts than the Proposed Action at approximately 1.44 acres (0.58 hectares).

### ***Alternative 2***

Impacts would be adverse, direct, and minor as the vegetation at the Alternative 2 site is disturbed, weedy, or ornamental landscaping.

## **3.7.2 Wetlands**

### ***3.7.2.1 Affected Environment***

A total of 23 wetlands were identified during a 2001 survey (Buckley AFB, 2004). Of these 23 wetlands, only one is in the vicinity of any of the Proposed Actions or their alternatives (Figure 3-4). This wetland is a natural drainage, though it is dry most of the year and is considered jurisdictional by the U.S. Army Corps of Engineers because it is connected to Tollgate Creek to the west. It is classified as palustrine emergent, which are wetlands characterized by herbaceous perennial vegetation that is present during the majority of the growing season (Cowardin et al., 1979).

The wetland is not located directly within any of the proposed project alternatives but is on the northern edge of the Logistics Readiness Complex Alternative 2 and the Consolidated Services Facility Alternative 1 sites. Additionally, the Alternative 1 site for the Communications Center would be located just north of this wetland. All three of these alternative sites would be located slightly upgradient of the subject wetland. Fifty-foot buffers around the wetland would be established for construction and operation of the new facilities. Erosion and sediment control BMPs required by SWPPPs (e.g., silt fences), as well as spill prevention, control, and countermeasure procedures identified in the Buckley AFB Integrated Environmental Response Plan, would be implemented to further reduce the potential for impacts to wetlands.

### ***3.7.2.2 Impacts***

The filling of wetlands and waters of the U.S. is regulated under the Clean Water Act, and construction in or near these sensitive areas would require Buckley AFB to apply for Section 404 permits (Buckley AFB, 2004). The ROI consists of the boundaries of the impacted wetland. While some construction activities may be close to wetlands located on base, these activities are not expected to impact wetlands, provided that BMPs (e.g., stormwater control, sediment control) are implemented, and disturbed areas are revegetated immediately after construction is complete. Therefore, it is expected that no permits would be required.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***3.7.2.3    Small Arms Range***

#### ***Proposed Action***

No impacts to wetlands would occur; no wetlands are located in the vicinity of the Proposed Action.

#### ***No Action***

No impacts to wetlands are expected under the No Action Alternative, as no proposed facilities would be constructed or operated.

#### ***Alternative 1***

No direct impacts to wetlands would occur under the Alternative 1, as no wetlands are located on the site. However, wetlands are located approximately 500 ft (152 meters) south and downgrade of the site. Silt fencing may be necessary on the southern perimeter of the site to protect these wetlands.

#### ***Alternative 2***

No impacts to wetlands would occur; no wetlands are located in the vicinity of the site.

### ***3.7.2.4    Logistics Readiness Complex***

#### ***Proposed Action***

No impacts to wetlands would occur under the Proposed Action, as no wetlands are located in the vicinity of the site.

#### ***No Action***

No impacts to wetlands are expected under the No Action Alternative, as no proposed facilities would be constructed or operated.

#### ***Alternative 1***

No impacts to wetlands would occur under the Alternative 1, as no wetlands are located in the vicinity of the site.

#### ***Alternative 2***

Indirect and short-term impacts to the wetland located at the northern edge of the site may occur during construction. No permanent or direct impacts to this wetland would be expected from construction, as the wetland is not located in the site footprint.

Construction of the Logistics Readiness Complex under Alternative 2 would occur at least 50 ft (15 meters) from the edge of the wetland. Implementation of measures to reduce impacts, including BMPs during all phases of construction, would minimize potential indirect impacts from sedimentation to this wetland. BMPs include using berms, brush barriers, check dams, erosion-control blankets, filter strips,



## **SECTION THREE      Affected Environment and Environmental Consequences**

---

sandbag barriers, sediment basins, silt fences, straw-bale barriers, surface roughening, and/or diversion channels. Unnecessary temporary impacts to wetlands would be avoided by fencing the limits of disturbance during construction.

### ***3.7.2.5 Consolidated Services Facility***

#### ***Proposed Action***

No impacts to wetlands would occur under the Proposed Action, as no wetlands are located in the vicinity of the site.

#### ***No Action***

No impacts to wetlands are expected under the No Action Alternative, as no proposed facilities would be constructed or operated.

#### ***Alternative 1***

The wetland located at the northern perimeter of the site may incur indirect and short-term impacts during construction. No permanent or direct impacts to this wetland would be expected from construction since the wetland is not located in the site footprint.

Construction and operation of the Consolidated Services Facility under Alternative 1 would occur at least 50 ft (15 meters) from the edge of the wetland. Implementation of measures to reduce impacts, including BMPs during all phases of construction would minimize potential indirect impacts from sedimentation to this wetland. BMPs include using berms, brush barriers, check dams, erosion-control blankets, filter strips, sandbag barriers, sediment basins, silt fences, straw-bale barriers, surface roughening, and/or diversion channels. Unnecessary temporary impacts to wetlands would be avoided by fencing the limits of disturbance during construction. Revegetating with native grasses immediately after construction is complete would also help protect nearby wetlands.

#### ***Alternative 2***

No impacts to wetlands would occur under Alternative 2, as no wetlands are located in the vicinity of the site.

### ***3.7.2.6 Communications Center***

#### ***Proposed Action***

No impacts to wetlands would occur under the Proposed Action, as no wetlands are located in the vicinity of the site.

#### ***No Action***

No impacts to wetlands are expected under the No Action Alternative, as no proposed facilities would be constructed or operated.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Alternative 1***

Indirect and short-term impacts to the wetland located south and downhill of the site may occur during construction. No permanent or direct impacts to this wetland would be expected from construction, as the wetland is not located in the site footprint.

Construction and operation of the Communications Center under Alternative 1 would occur at least 50 ft (15 meters) from the edge of the wetland. Implementation of measures to reduce impacts, including BMPs during all phases of construction, would minimize potential indirect impacts from sedimentation to this wetland. BMPs include using berms, brush barriers, check dams, erosion-control blankets, filter strips, sandbag barriers, sediment basins, silt fences, straw-bale barriers, surface roughening, and/or diversion channels. Unnecessary temporary impacts to wetlands would be avoided by fencing the limits of disturbance during construction. Revegetating with native grasses immediately after construction is complete would also help protect nearby wetlands.

### ***Alternative 2***

No impacts to wetlands would occur under Alternative 2, as no wetlands are located in the vicinity of the site.

### **3.7.3 Wildlife**

This section describes the wildlife species and their habitat associations at Buckley AFB. No aquatic habitat occurs within any of the proposed alternatives; therefore, animals associated with permanent water sources are not included in this analysis.

#### ***3.7.3.1 Affected Environment***

The wildlife species known to occur basewide are described as follows:

#### ***Mammals***

No ungulates occur on the base due to the exclusion fencing around the perimeter, although pronghorn (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*) historically occurred on the base and still inhabit surrounding properties (Buckley AFB, 2004).

Carnivores inhabiting Buckley AFB include red fox (*Vulpes vulpes*), coyote (*Canis latrans*), American badger (*Taxidea taxus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and long-tailed weasel (*Mustela frenata*).

Small mammals observed at Buckley AFB include rodents and lagomorphs (rabbits). The most widely observed of these is the black-tailed prairie dog (*Cynomys ludovicianus*). Prairie dogs are considered keystone species of the shortgrass prairie ecosystem as they support a diverse array of other plant and wildlife species within their colonies. Prairie dogs are discussed in more detail in Section 3.7.4.

Other rodents known to inhabit Buckley AFB include plains pocket gopher (*Geomys bursarius*), thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), fox squirrel (*Sciurus niger*), deer mouse (*Peromyscus maniculatus*), and prairie vole (*Microtus ochragaster*). Common lagomorphs include black-tailed jackrabbit (*Lepus californicus*), white-tailed jackrabbit (*Lepus townsendi*), eastern cottontail (*Sylvilagus floridanus*), and desert cottontail (*Sylvilagus auduboni*).

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

### ***Birds***

The midgrass prairie community supports numerous bird species, many of which are ground-nesters. The most common songbirds inhabiting prairie include western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), lark bunting (*Calamospiza melanocorys*), killdeer (*Charadrius vociferous*), black-billed magpie (*Pica pica*), mourning dove (*Zenaidura macroura*), western kingbird (*Tyrannus verticalis*), and eastern kingbird (*Tyrannus tyrannus*). Species more common in urbanized areas include house finch (*Carpodacus mexicanus*), common grackle (*Quiscalus quiscula*), and non-native house sparrow (*Passer domesticus*), rock dove (*Columba livia*), and European starling (*Sturnus vulgaris*).

Raptor species known or likely to occur at Buckley AFB include burrowing owl (*Athene cunicularia*; discussed further in Section 3.7.4), Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamacensis*), prairie falcon (*Falco mexicanus*), and American kestrel (*Falco sparverius*). Additionally, bald eagle (*Haliaeetus leucocephalus*), ferruginous hawk (*Buteo regalis*) and rough-legged hawks (*Buteo lagopus*) may be observed in winter.

### ***Reptiles and Amphibians***

Plains spadefoot toad (*Spea bombifrons*) and great plains toads (*Bufo cognatus*) occupy grassland habitat along riparian floodplains and may occur on Buckley AFB (Hammerson, 1999). Bullfrog (*Rana catesbeiana*) and northern leopard frog (*Rana pipiens*) have been observed on the base but are generally found near a permanent water source, which does not occur in the vicinity of any of the four proposed projects or their project alternatives.

A variety of reptile species inhabit Buckley AFB; some of the more commonly observed species include northern prairie lizard (*Sceloporus undulatus garmani*), bullsnake (*Pituophis catenifir*), western hognose snake (*Heterodon nasicus*), plains garter snake (*Thamnophis radix*), and prairie rattlesnake (*Crotalus viridis viridis*) (Buckley AFB, 2004).

The existing wildlife habitats at the Proposed Action and action alternatives sites are described below.

#### ***3.7.3.2 Small Arms Range***

##### ***Proposed Action***

This site is comprised of relatively undisturbed midgrass prairie habitat with primarily native grass and forb species. A juniper shelterbelt lines the north and east perimeter of the site. The Small Arms Range Proposed Action site likely supports ground-nesting birds, raptors, small and medium sized mammals, and reptiles, as discussed in Section 3.7.3.1. As of 2004, no prairie dogs inhabit the site, but individuals could colonize the site from adjacent areas in the future.

##### ***Alternative 1***

The habitat and wildlife present at this site is similar to the Proposed Action but a juniper shelterbelt lines the eastern perimeter of the site. As of 2004, no prairie dogs occur on the site, but may migrate onto the site from an existing colony to the north.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Alternative 2***

The habitat at this site is mixed grass prairie dominated by crested wheatgrass, especially adjacent to the road. The Alternative 2 site likely supports ground-nesting birds, raptors, small and medium sized mammals, and reptiles, as discussed in Section 3.7.3.1. No prairie dogs were observed on the site.

### ***3.7.3.3 Logistics Readiness Complex***

#### ***Proposed Action***

The habitat is mixed grass prairie dominated by crested wheatgrass, which is suitable habitat for ground-nesting birds, raptors, mammals, and reptiles. Some prairie dogs occur on the perimeters of this site, primarily near Aspen Street.

#### ***Alternative 1***

This site consists of very disturbed, weedy areas that are only of marginal wildlife value, although prairie dogs currently inhabit the site.

#### ***Alternative 2***

The habitat at this site is midgrass prairie dominated by crested wheatgrass with a shelterbelt of juniper and deciduous shrubs bisecting the site. The Alternative 2 site likely supports ground nesting birds, raptors, small and medium sized mammals, and reptiles, as discussed in Section 3.7.3.1. Some prairie dogs occur in the northern and southern ends of this site.

### ***3.7.3.4 Consolidated Services Facility***

#### ***Proposed Action***

The habitat at this site is very disturbed and consists of a prairie dog colony with vegetation dominated primarily by weedy species. Several mature ponderosa pine and eight Siberian elm trees are located on the southern portion of the site. A pair of great horned owls nested in one of these trees in the 2004 season.

#### ***Alternative 1***

The Alternative 1 site consists of midgrass prairie dominated by crested wheatgrass with a shelterbelt of juniper and deciduous shrubs bisecting the site. The Alternative 1 site likely supports ground-nesting birds, raptors, small and medium sized mammals, and reptiles, as discussed in Section 3.7.3.1. Some prairie dogs occur in the northern and southern ends of this site.

#### ***Alternative 2***

This site consists of relatively high quality mixed grass prairie habitat. This site likely supports ground-nesting birds, raptors, small and medium sized mammals, and reptiles, as discussed in Section 3.7.3.1. Prairie dogs occur on this site.

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

### **3.7.3.5 Communications Center**

#### ***Proposed Action***

This site supports a prairie dog colony but is of low quality due to the presence of primarily weedy vegetation. A deciduous tree is located in the center of the site. Burrowing owls nested north of this site in 2004 and are discussed in more detail in Section 3.7.4.3.

#### ***Alternative 1***

This site consists of mixed grass prairie habitat with a shelterbelt bisecting the site in a north-south direction. A wetland is located just south of the site. This site likely supports ground-nesting birds, raptors, small and medium sized mammals, and reptiles, as discussed in Section 3.7.3.1. Prairie dogs occur on this site.

#### ***Alternative 2***

This site is located north of and adjacent to the Proposed Action; the wildlife and habitat present are similar to the Proposed Action. Burrowing owls nested north of this site in 2004 and are discussed in more detail in Section 3.7.4.3.

### **3.7.3.6 Impacts**

This section analyzes potential impacts to wildlife species from implementation of each of the four Proposed Actions and alternatives for each of the facilities. The ROI analyzed for impacts to wildlife include the proposed action and their alternative sites, as well as immediately adjacent habitats.

Impacts to wildlife from construction of any of the Proposed Action or their alternatives include habitat loss, disturbance (avoidance and displacement) from construction or operation, and mortality to small-sized animals from crushing, burial, or lethal prairie dog removal (e.g., fumigation, see section 3.4.7.3). Habitat loss results from permanent removal of existing vegetation and replacement with pavement or structures, but habitat loss may be temporary in areas that are revegetated after construction. The destruction of black-tailed prairie dog colonies would result in the permanent loss of habitat for species dependent on prairie dog colonies for food or shelter. Impacts to black-tailed prairie dogs are discussed further in Section 3.7.4.3.

Construction activity is likely to temporarily displace many animals due to noise, human presence, and heavy equipment. The duration and distance an animal is displaced is generally dependent on the individual or species, and an individual's response to disturbance may change with time. Direct impacts from mortality to smaller, less mobile species would occur during construction from ground-clearing and earth-moving.

Nearly all bird species present in the project area are protected by the Migratory Bird Treaty Act (MBTA), a federal act that prohibits destruction or disturbance of active nests that results in loss of eggs or young without a permit from the U.S. Fish and Wildlife Service (USFWS). All wild birds, including raptors, are protected under the MBTA, except for non-native species mentioned above. Vegetation-clearing, earth-moving, and other construction activities have the potential to destroy nests of bird species protected under the MBTA.

Under the Proposed Action or action alternatives, ground-disturbing activities (such as earth-moving and vegetation-clearing) may destroy bird nests of arboreal and ground-nesting species if construction occurs



## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

during breeding season, generally between March 1 and October 31. Additionally, noise from heavy equipment operation and other construction activities may temporarily disturb nesting birds, possibly resulting in nest abandonment.

### ***3.7.3.7 Small Arms Range***

#### ***Proposed Action***

Under the Proposed Action, wildlife would be displaced from 1.13 acres (0.46 hectares) of habitat. This loss of habitat would result in long-term, minor and direct adverse impacts to wildlife; however, adjacent areas of suitable habitat would be available. In addition, several small black-tailed prairie dog burrows are located on the Proposed Action site; removal of these burrows would represent a minor loss of habitat for predators and other animals inhabiting prairie dog burrows, such as rabbits, rodents, burrowing owls, and reptiles, if present. Fumigating black-tailed prairie dogs for removal from the project area, if necessary, could also result in mortality to the other animals potentially inhabiting prairie dog burrows.

To avoid potential adverse impacts to ground-nesting birds and to comply with the MBTA, all vegetation should be cleared prior to March 1 or after October 31. If construction occurs during the nesting season and vegetation has not been cleared, surveys for active nests should be conducted (including ground nests). If active nests occur on site, protective buffers should be implemented in coordination with USFWS.

Operation of the Small Arms Range, under the Proposed Action or the other alternatives, may initially displace burrowing owls, if present, to adjacent areas of suitable habitat as a result of the noise and disturbance from grenades. Additionally, operation of the grenade launchers would be on going, and burrowing owls would habituate to the noise or choose adjacent areas for nesting. The nearest known nests (2004) are currently located over 1,500 ft away from any of the proposed Small Arms Range locations and, therefore, would not have adverse impacts to burrowing owls.

Long-term and indirect effects from operation of the Small Arms Range would result from noise disturbance, especially during use of the outdoor grenade training area, which would likely displace animals, including nesting birds, temporarily or permanently. Wildlife would incur short-term and long-term, minor, direct and indirect adverse impacts from construction and operation of the Proposed Action. Although some wildlife may be displaced, the large undeveloped areas on the base would provide potential habitat for such individuals. However, these undeveloped areas are already occupied by wildlife species and, therefore, displaced individuals may be susceptible to predation or competitive stress.

#### ***No Action***

No impacts to wildlife are expected under the No Action Alternative, as no proposed facilities would be constructed or operated.

#### ***Alternative 1***

Impacts would be similar to those described for the Proposed Action, although no prairie dog burrows currently exist on the site. Operation of the Small Arms Range, under the Proposed Action or the other alternatives, would be ongoing and prairie dogs are unlikely to immigrate onto the site due to the noise and disturbance from the grenade launcher.

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

### ***Alternative 2***

Impacts would be similar to those described for the Proposed Action for this facility, although no prairie dog burrows exist on the site.

#### ***3.7.3.8 Logistics Readiness Complex***

### ***Proposed Action***

Impacts under the Proposed Action would consist of minor, short- and long-term, and direct construction impacts. Construction of this facility would remove approximately 0.90 acres (0.36 hectares) of wildlife habitat. Due to this habitat loss, wildlife would be displaced to other areas of adjacent habitat, or killed by crushing or burial during construction activities by heavy equipment. Prairie dogs that inhabit the Proposed Action site would require removal; removal of these burrows would represent a minor loss of habitat for predators and other animals inhabiting prairie dog burrows, such as rabbits, rodents, burrowing owls, and reptiles, if present. Fumigating black-tailed prairie dogs for removal from the project area, if necessary, could also result in mortality to the other animals potentially inhabiting prairie dog burrows.

To avoid potential adverse impacts to ground-nesting birds and to comply with the MBTA, all vegetation should be cleared prior to March 1 or after October 31. If construction occurs during the nesting season and vegetation has not been cleared, surveys for active nests should be conducted (including ground nests). If active nests occur on site, protective buffers should be implemented in coordination with USFWS.

### ***No Action***

No impacts to wildlife are expected under the No Action Alternative, as no proposed facilities would be constructed or operated.

### ***Alternative 1***

Prairie dog burrows were observed on the site and these prairie dogs would be removed for construction. Impacts would be similar to those described for the Proposed Action.

### ***Alternative 2***

Prairie dog burrows were observed on the site and these prairie dogs would be removed for construction. Impacts would be similar to those described for the Proposed Action for this facility.

#### ***3.7.3.9 Consolidated Services Facility***

### ***Proposed Action***

The proposed facility would replace 1.5 acres (0.61 hectares) of wildlife habitat. Additionally, several trees which were used by a great horned owl pair in 2004 for nesting and which may support other nesting birds, may require removal. If trees are removed during the nesting season and nesting birds are present, young birds or eggs would be destroyed. To avoid potential adverse impacts to ground-nesting birds and to comply with the MBTA, all vegetation should be cleared prior to March 1 or after October 31. If

## **SECTION THREE**

## **Affected Environment and Environmental Consequences**

---

construction occurs during the nesting season and vegetation has not been cleared, surveys for active nests should be conducted (including ground nests). If active nests occur on site, protective buffers should be implemented in coordination with USFWS.

Prairie dogs that inhabit the Proposed Action site would require removal; removal of these burrows would represent a minor loss of habitat for predators and other animals inhabiting prairie dog burrows, such as rabbits, rodents, burrowing owls, and reptiles, if present. Fumigating black-tailed prairie dogs for removal from the project area, if necessary, could also result in mortality to the other animals potentially inhabiting prairie dog burrows.

Impacts to wildlife under the Proposed Action are expected to be minor, direct, and short- and long-term from construction. No impacts are expected from operation of the Consolidated Services Facility.

### ***No Action***

No impacts to wildlife are expected under the No Action Alternative, as no proposed facilities would be constructed or operated.

### ***Alternative 1***

The Alternative 1 site for the Consolidated Services Facility would be in the same location as the Alternative 2 site for the Logistics Readiness Complex. Prairie dog burrows were observed on the site and these prairie dogs would be removed for construction. Impacts would be similar to those described for the Proposed Action for the Consolidated Services Facility, although the habitat at this site is of higher quality than the Proposed Action site.

### ***Alternative 2***

Impacts for Alternative 2 would be similar to those described for Alternative 1 for this facility, as the sites would be in similar habitat in adjacent areas, although no prairie dog colonies occur under Alternative 2. This would result in a lesser degree of impact to wildlife dependent on prairie dogs than Alternative 1.

### ***3.7.3.10 Communications Center***

#### ***Proposed Action***

Under the Proposed Action, 1.42 acres (0.57 hectares) of wildlife habitat would be removed. Additionally, a deciduous tree, which may support nesting birds, would require removal. If the tree is removed during the nesting season and nesting birds are present, young birds or eggs would be destroyed. To avoid potential adverse impacts to nesting birds and to comply with the MBTA, all vegetation should be cleared prior to March 1 or after October 31. If construction occurs during the nesting season and vegetation has not been cleared, surveys for active nests should be conducted (including ground nests). If active nests occur on site, protective buffers should be implemented in coordination with USFWS.

Prairie dogs that inhabit the Proposed Action site would require removal; removal of these burrows would represent a minor loss of habitat for predators and other animals inhabiting prairie dog burrows, such as rabbits, rodents, burrowing owls, and reptiles, if present. Fumigating black-tailed prairie dogs for removal from the project area, if necessary, could also result in mortality to the other animals potentially inhabiting prairie dog burrows. However, the habitat at this site is of low quality for wildlife as it is not native prairie grassland.

## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

Impacts to wildlife under the Proposed Action are expected to be minor, direct, and short- and long-term from construction; no impacts are expected from operation of the Communications Center.

### ***No Action***

No impacts to wildlife are expected under the No Action Alternative, as no proposed facilities would be constructed or operated.

### ***Alternative 1***

Impacts would be slightly larger than the Proposed Alternative for Alternative 1. Approximately 1.44 acres (0.58 hectares) of wildlife habitat would be disturbed. However, the impact to species dependent on prairie dogs may be greater as Alternative 1 consists of higher quality habitat than the Proposed Action site.

### ***Alternative 2***

Impacts would be similar to those described for the Proposed Action for this facility, although scattered ornamental trees line the northern perimeter of the site. To avoid potential adverse impacts to nesting birds and to comply with the MBTA, all vegetation should be cleared prior to March 1 or after October 31. If construction occurs during the nesting season and vegetation has not been cleared, surveys for active nests should be conducted (including ground nests). If active nests occur on site, protective buffers should be implemented in coordination with USFWS.

Impacts from removal of black-tailed prairie dog burrows are similar to those described for the Proposed Action site.

## **3.7.4 Threatened, Endangered, and Other Sensitive Species**

Threatened and endangered plant and animal species are protected under the Endangered Species Act (ESA) or Colorado State law. An endangered species is defined as any species in danger of extinction throughout all or a significant portion of its range; a threatened species is one that is likely to become endangered in the foreseeable future. Other sensitive species include those listed by the Colorado Division of Wildlife (CDOW) as special concern, which receive no formal protection, but are still considered when assessing potential project impacts.

### ***3.7.4.1 Affected Environment***

Federal and Colorado State listed threatened and endangered species, as well as CDOW species of concern, are shown in Table 3-11. Black-tailed prairie dogs and burrowing owls are known to occur within or in the vicinity of the four Proposed Action or their Alternative sites; these species are discussed in more detail below. A number of species that lack suitable habitat, are unlikely to occur, or would not be impacted are not discussed further. These species include black-footed ferret, swift fox, Preble's meadow jumping mouse, bald eagle, ferruginous hawk, plains sharp-tailed grouse, northern leopard frog, Utes ladies'-tresses, and Colorado butterfly plant.

## SECTION THREE Affected Environment and Environmental Consequences

**Table 3-11. Threatened, Endangered, and Other Sensitive Species and Their Occurrence at Buckley AFB**

Common Name	Scientific Name	Status		Potential for Occurrence on Sites
		Federal	State	
Mammals				
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	--	SC	Present.
Black-footed ferret	<i>Mustela nigripes</i>	E	E	Not present; Buckley AFB is within Block Clearance Zone in Colorado.
Swift fox	<i>Vulpes velox</i>	--	SC	Unlikely; occurs on eastern plains of Colorado in areas of native prairie. No observations at Buckley AFB.
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	T	T	Not present; Buckley AFB is within the Denver Metropolitan Block Clearance Zone.
Birds				
Burrowing Owl	<i>Athene cunicularia</i>	--	T	Present. Nesting locations in vicinity of the Proposed Action and action alternatives.
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T	Occasional visitor; no known nest or roost locations within base.
Ferruginous Hawk	<i>Buteo regalis</i>	--	SC	Potentially present; no known nesting locations
Plains Sharp-tailed Grouse	<i>Tympanuchus phasianellus jamesii</i>	--	E	Potentially present; no known nesting locations.
Amphibians				
Northern Leopard Frog	<i>Rana pipiens</i>	--	SC	Potentially present in association with permanent water sources. No permanent water sources in any proposed or alternative sites.
Plant Species				
Colorado Butterfly Plant	<i>Gaura neomexicana ssp. coloradensis</i>	T	--	Unlikely; survey conducted in 2004 with none found.
Utes ladies'-tresses	<i>Spiranthes diluvialis</i>	T	--	Unlikely; surveys conducted in 2001 with none found.

T = Threatened

E = Endangered

SC = Species of Special Concern in Colorado, CDOW listing

### ***Black-tailed Prairie Dog***

The black-tailed prairie dog was a Candidate for Listing under the ESA in 2000, but was removed from this status in 2004. However, black-tailed prairie dogs are still considered a Species of Special Concern by the CDOW due to their role as a keystone species and their importance to the shortgrass prairie ecosystem.

Black-tailed prairie dogs occur in many areas throughout Buckley AFB. They inhabit burrows, which form networks of tunnels, typically 3 to 6 ft (0.7 to 1.8 m) deep. Many other species inhabit prairie dog burrows, including burrowing owls, cottontails, other rodents, reptiles, insects, and spiders (Hoogland, 1995).

During site visits, prairie dog burrows were observed on the Proposed Action and action alternative sites, except for the Logistics Readiness Complex under the Proposed Action and the Small Arms Range



## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

Alternative 1. Figure 3-5 shows the location and estimated density of prairie dog colonies at each of the proposed sites.

Buckley AFB has a *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB, 2001) in place to address management of active black-tailed prairie dog colonies. This EA specifies that if a prairie dog colony would be impacted by a proposed action, then prairie dogs would be removed prior to construction using approved removal methods described in the EA.

### ***Burrowing Owl***

Burrowing owls are listed as threatened in Colorado but also receive federal protection under the MBTA. Burrowing owls nest in abandoned prairie dog burrows and are generally present on base from early March to late October. Burrowing owls may be present at any of the proposed action sites and alternatives during these months, although nests have been observed in closest proximity to each of the Communications Center alternative sites within the past four years (Figure 3-5). During 2004 site visits, no evidence of burrowing owl nests was observed on proposed facility sites. However, locations of nests may differ from year to year.

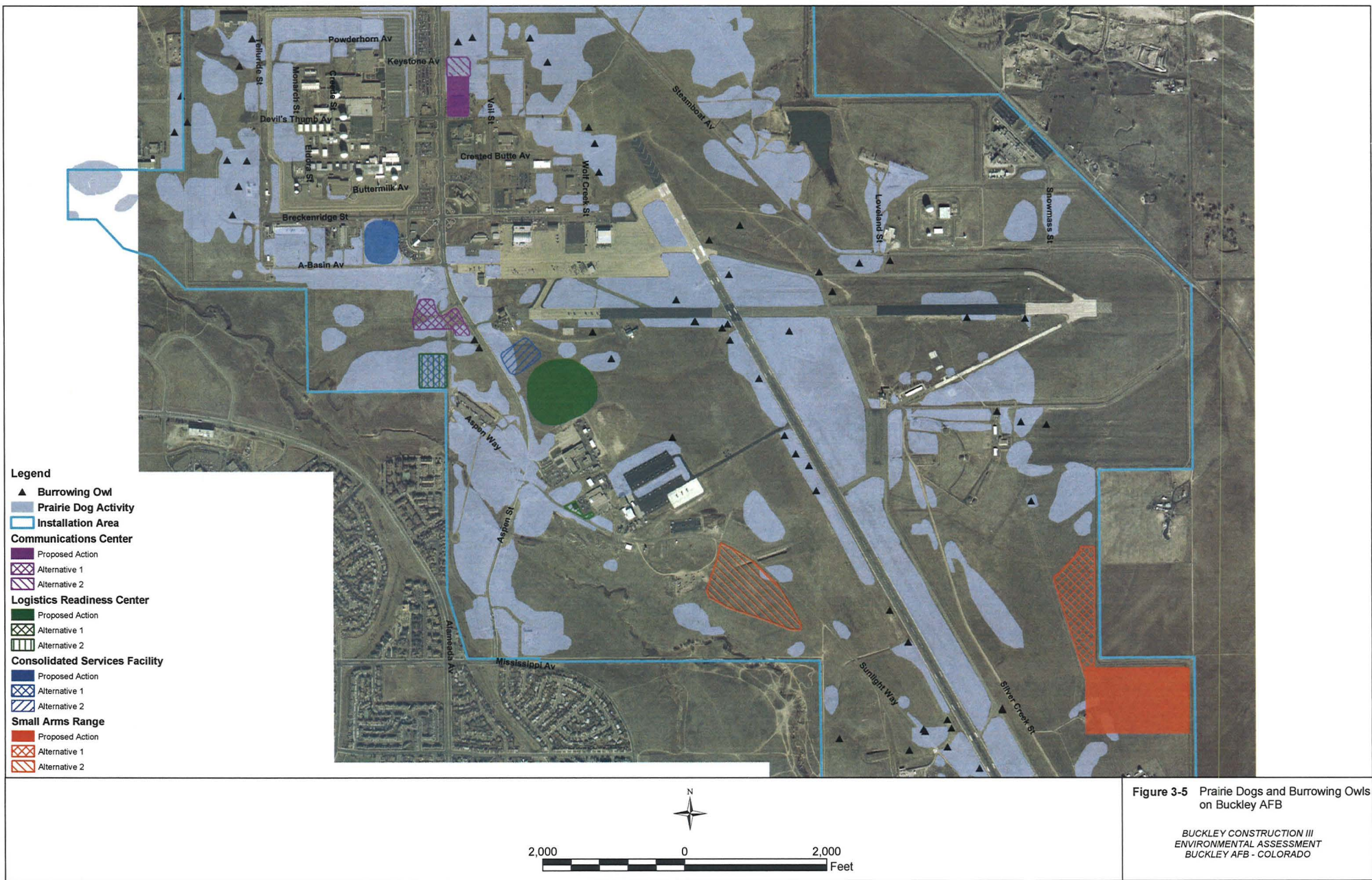
### **3.7.4.2 Impacts**

This section analyzes potential impacts to black-tailed prairie dogs (Colorado species of special concern) and burrowing owls (Colorado threatened) from implementation of each of the proposed actions and alternatives for each of the facilities

### **3.7.4.3 All Proposed Actions and Alternatives**

#### ***Black-tailed Prairie Dog***

Approved prairie dog removal methods, including non-lethal and lethal methods, are described and analyzed in the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB, 2001). However, because the black-tailed prairie dog was a federal candidate species when the EA was written, it only described and analyzed the use of approved lethal removal methods under specific circumstances. With the recent delisting of the black-tailed prairie dog, lethal methods, as well as methods not described in the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB, 2001) (such as transferring prairie dogs to raptor facilities) may be used in any circumstance to eliminate safety- and/or mission-related impacts that occur due to the presence of this species (e.g., prairie dogs provide prey for raptors that contribute to bird-aircraft strike hazards). Therefore, impacts from lethal removal methods and transfer to raptor facilities are analyzed in this construction EA. The ROI includes the Proposed Action and action alternative sites, as well as adjacent areas. No federally listed species would incur impacts from construction of the proposed or alternative actions associated with each facility. Where applicable, measures to eliminate or minimize impacts are suggested.



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## **SECTION THREE**      **Affected Environment and Environmental Consequences**

---

Direct adverse impacts to prairie dogs would occur from construction of the Proposed Action or action alternatives, except the Logistics Readiness Complex under the Proposed Action and the Small Arms Range under Alternative 1. Although black-tailed prairie dogs were recently delisted as a federal candidate species, the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB, 2001) still provides black-tailed prairie dog management directive until it is revised or replaced by another EA or management directive. Prairie dogs are still considered a species of special concern in Colorado and their burrows do support numerous other wildlife species, including nesting burrowing owls.

The *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB, 2001) specifies that if a prairie dog colony would be impacted by a proposed action, then prairie dogs would be removed prior to construction. The EA addresses the impacts of using approved non-lethal methods, but only covers the impacts from lethal methods under specific circumstances, and does not consider options that are now available given the delisting of this species, such as transferring to a raptor facility.

The preferred method of removing prairie dogs is transfer to a raptor facility. Although this does not result in direct mortality of individuals, transfer to a raptor facility could still result in adverse impacts to individual black-tailed prairie dogs because they are part of the prey base for these birds. Approved lethal methods of removal, such as fumigation, would result in the direct loss of individual prairie dogs. Therefore, impacts to prairie dogs as a result of habitat loss, transfer, or lethal removal under the Proposed Action and action alternatives would be moderate and long-term.

Long-term and indirect effects to prairie dogs from operation of the Small Arms Range would result from noise disturbance, especially during use of the outdoor grenade training area. Prairie dogs in the vicinity of the range could be temporarily, and possibly permanently, displaced due to the increased noise. However, as the grenades to be used in this training area would be inert, the impacts are anticipated to be negligible.

### ***Burrowing Owl***

Burrowing owls have nested in various locations throughout Buckley AFB where suitable prairie dog habitat occurs (Figure 3-5). Indirect and long-term impacts to burrowing owls would include loss of habitat as prairie dog colonies are destroyed and replaced with proposed facilities. The loss of prairie dog colonies would reduce the availability of burrowing owl nest sites, although nest sites would still be available in other areas of Buckley AFB.

Burrowing owls may be present during the breeding season (between March 1 and October 31) at any of the Proposed Action or Alternative sites. To deter a burrowing owl from nesting in or near a construction site, prairie dogs should be removed and burrows destroyed prior to March 1. However, if this is not possible, and should construction occur during the burrowing owl nesting season, pre-construction surveys would be conducted to determine the presence or absence of nesting burrowing owls at the proposed site, in accordance with the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB, 2001). If nesting burrowing owls are present, a 150-ft (45.72-m) buffer would be established around active nest sites during the breeding season to protect owls from disturbances associated with construction, especially increased noise. Given these measures, direct and short-term impacts to nesting individuals or young burrowing owls from construction-related noise would be negligible.

No direct impacts to burrowing owls would be anticipated from black-tailed prairie dog removal under the Proposed Action or action alternatives. In accordance with the *Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB, 2001), should

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

construction occur during the burrowing owl nesting season, pre-construction surveys would be conducted to determine the presence or absence of nesting burrowing owls at the proposed site. If nesting burrowing owls are identified, prairie dog removal would not be conducted.

Long-term and indirect effects to burrowing owls from operation of the Small Arms Range would result from noise disturbance, especially during use of the outdoor grenade training area. Burrowing owls in the vicinity of the range could be temporarily, and possibly permanently, displaced due to the increased noise. However, as the grenades to be used in this training area would be inert, the impacts are anticipated to be negligible.

### ***No Action***

No impacts to threatened, endangered, or other sensitive species are expected under the No Action Alternative, as no proposed facilities would be constructed or operated.

## **3.8      HAZARDOUS MATERIALS AND WASTE**

This section discusses hazardous materials and waste issues at Buckley AFB related to construction of any of the Proposed Actions or action alternatives. This discussion includes asbestos, Buckley AFB ERP sites, fuel storage tanks, monitoring wells adjacent to site, proximity to range/unexploded ordnance (UXO) past and present activities, and polychlorinated biphenyls (PCBs). Solid waste and pollution prevention is addressed in Section 3.9.

### **3.8.1      Affected Environment**

Site visits were conducted at the Proposed Action and action alternative locations. These site visits occurred on July 23, 2004 and November 20, 2004. Sites were observed by walking the site perimeter and transecting the internal areas of the property. Photographs were taken during the site visit to document potential environmental concerns. Document reviews and interviews were also conducted to identify potential environmental concerns.

### ***Asbestos***

World War II (WW II) era buildings were on site at Buckley AFB around 1944 (Figure 3-6). These buildings were demolished during the late 1940s and early 1950s. The building materials were removed from the base but many of the foundations were left behind. The wide use of asbestos prior to 1980 contributes to concerns that demolition debris that was buried or spread may have contained asbestos, and may not have been mitigated to today's standards. All projects should be evaluated before construction begins for such material but especially for the projects in old WWII building areas (Buckley AFB, 2002).

### ***Installation Restoration Program***

The Installation Restoration Program (IRP) is a program category under the Air Force Environmental Restoration Program (ERP). The scope of the IRP is investigation and cleanup of Air Force sites whose past activities created contamination primarily from hazardous substances, hazardous wastes, low level radioactive materials or wastes, or petroleum, oils, and lubricants. The Buckley IRP consists of ten sites, two of which have been closed, and one Area of Concern at the Buckley Annex. Also ongoing is an expansion of the Preliminary Assessment and Site Inspection conducted by the Colorado Air National



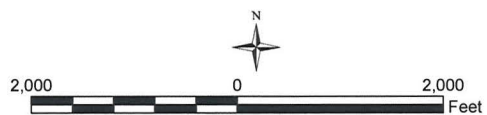
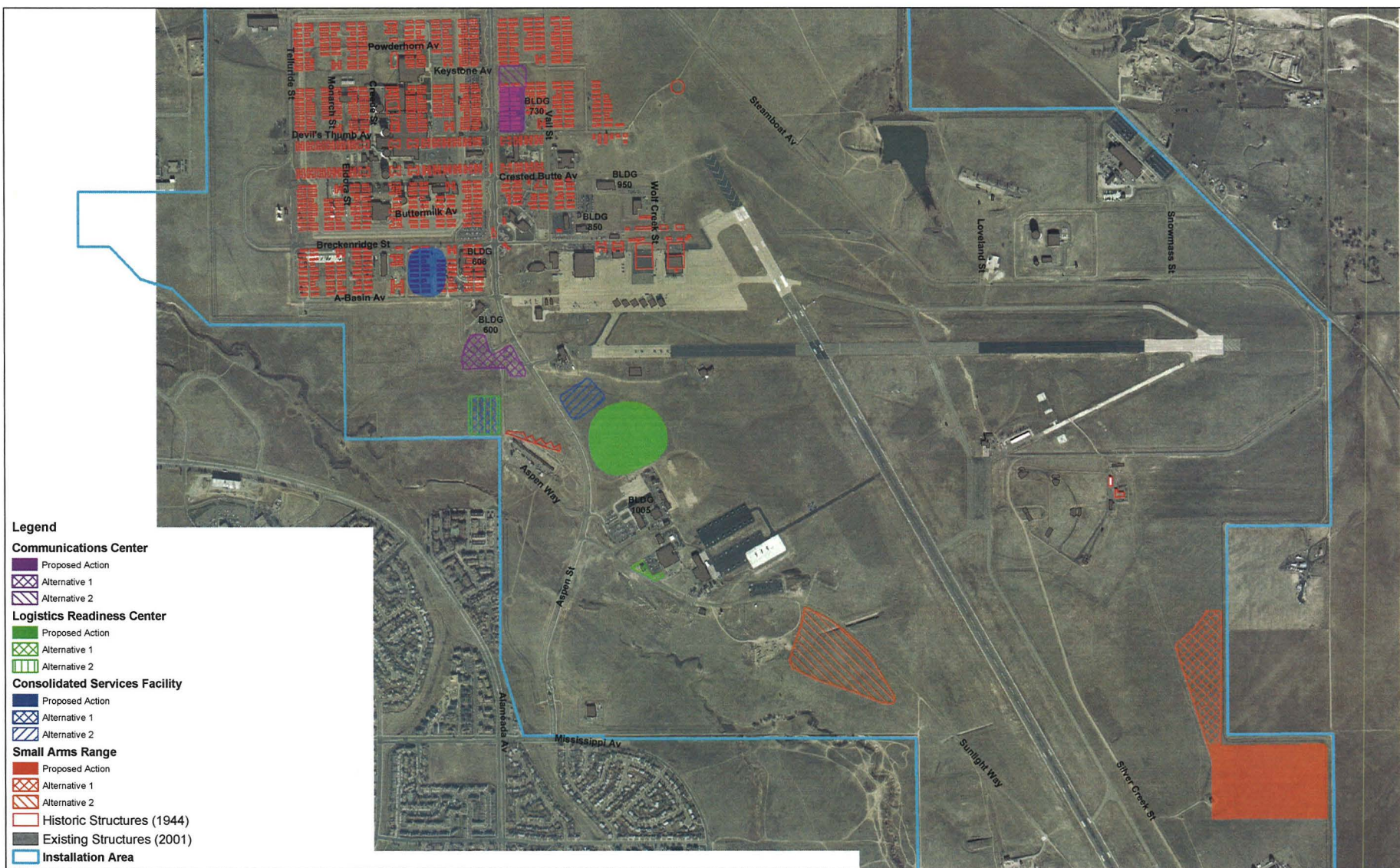


Figure 3-6 Former, Existing, and Future Structures at Buckley AFB

BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AFB - COLORADO



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## **SECTION THREE      Affected Environment and Environmental Consequences**

---

Guard in the 1980s. This nationwide search for historical Army, Navy, and National Guard records is designed to determine whether there are contaminated sites not previously discovered at Buckley.

ERP sites are illustrated in Figure 3-7. Note that Sites 3, 4, and 8 are in close proximity to proposed or alternative actions. Site 3, Base Dump, is undergoing an evaluation of the thickness and extent of the existing soil cover. Site 4, Fire Training Area No. 3, is undergoing an Engineering Evaluation/Cost Analysis. Site 8, Alleged Aircraft Burial Site, is closed.

### ***Military Munitions Response Program***

The Military Munitions Response Program (MMRP) is another program category under the Air Force ERP. The scope of the MMRP is investigation and cleanup of other-than operational ranges contaminated with military munitions, e.g., unexploded ordnance, or chemical residues of munitions. Buckley currently has two MMRP sites: the abandoned outdoor range and the former skeet range (Figure 3-7). Note that the former skeet range is in close proximity to several alternative actions. The Air Force MMRP is centrally managed by Air Staff, which recently initiated a Comprehensive Site Evaluation, Phase I, at each base to identify additional MMRP sites that may require responses to protect human health and the environment.

### ***Fuel Storage Tanks***

Prior to 1998, the majority of underground storage tanks (USTs) were removed from Buckley AFB (Buckley AFB, 2002). However, aboveground storage tanks are still located at several locations around the base. Buckley AFB has a current draft Spill Prevention and Countermeasure Control Plan (SPCC) that is incorporated into the Integrated Environmental Response Plan.

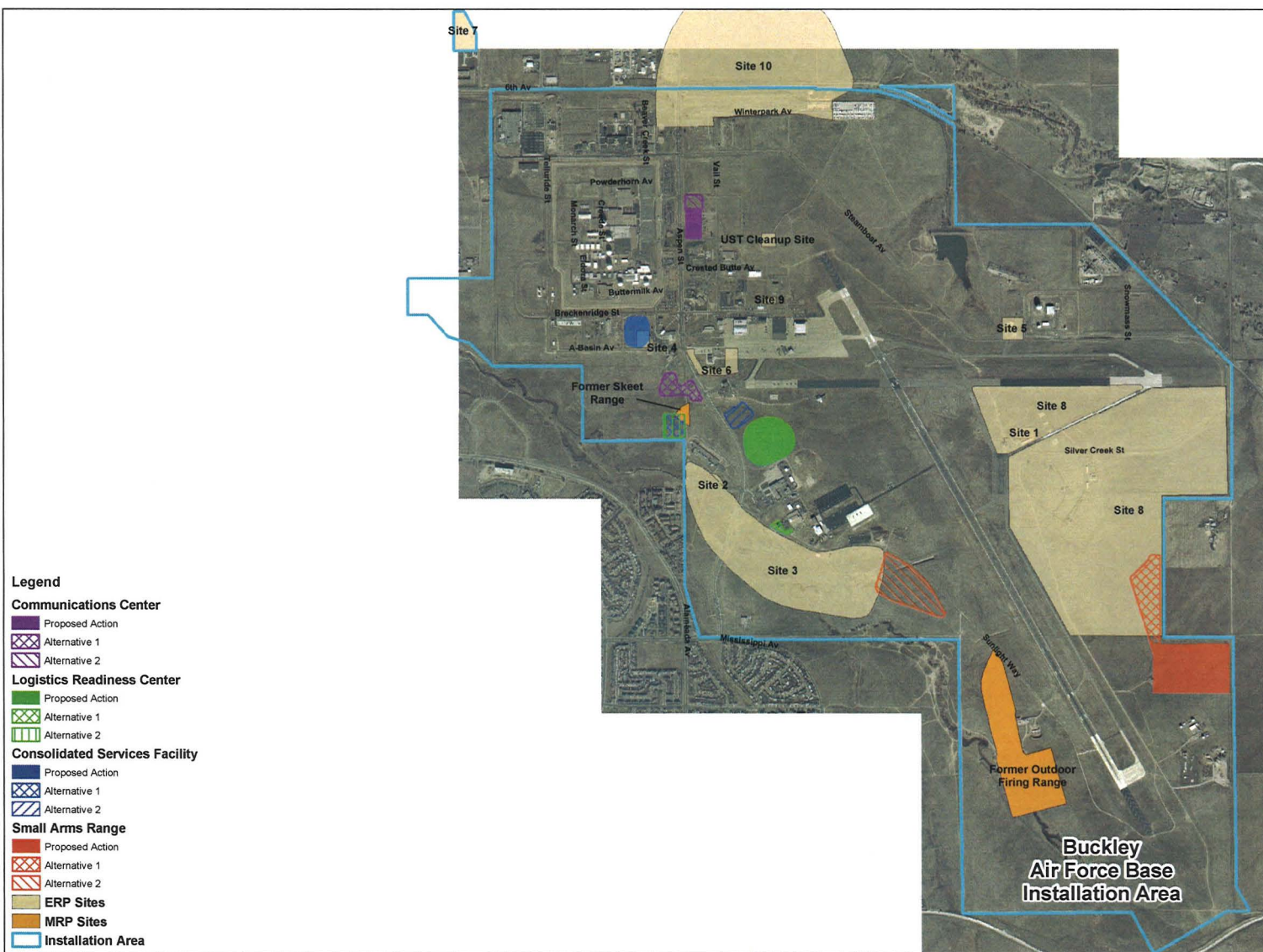
### ***Radon***

Radon is a naturally occurring, odorless, radioactive gas produced by naturally decaying uranium. Extended exposure to high levels of radon is a suspected carcinogen. Federal guidelines determine levels below four picocuries per liter (pCi/L) are low risk. Buckley AFB is located within an area of highest potential for radon gas decay (levels that are above 4 pCi/L). However, between 1993 and 1997 four facilities were tested for radon at 30 sampling locations. Only one, in a crawl space, indicated radon levels above the federal standard (Buckley AFB, 2002).

### ***Poly-chlorinated biphenyls***

By federal definition, "PCB equipment" contains 500 parts per million (ppm) PCBs or greater; whereas "PCB-contaminated equipment" contains PCB concentrations equal to or greater than 50 ppm, but less than 500 ppm; and "PCB items" contain from 5 to 49 ppm PCBs. The electrical system at Buckley AFB is working toward becoming PCB free. All transformers with PCB concentrations over 500 ppm have been removed, replaced, or retrofitted to below 50 ppm (Buckley AFB, 2000).

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**Figure 3-7 Environmental Restoration Program & Munitions Response Program Sites Map**

BUCKLEY CONSTRUCTION III  
ENVIRONMENTAL ASSESSMENT  
BUCKLEY AFB - COLORADO

## **SECTION THREE**    **Affected Environment and Environmental Consequences**

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## **SECTION THREE      Affected Environment and Environmental Consequences**

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### ***3.8.1.1    Small Arms Range***

#### ***Proposed Action***

There is no evidence of former WWII structures being located at the Proposed Action location for the Small Arms Range.

The Proposed Action site is not located within an ERP site.

A 250-gallon (946-liter) diesel tank is located at Building 1619 southwest of the site and a 1,500-gallon (5,678-liter) propane tank is located at Building 1610 south of the site.

Monitoring wells and past range/UXO activities were not observed during site visits.

Three old concrete pads were also observed during site visits at adjacent buildings.

Soil mounds were observed during the site visit that may indicate past dumping or burial may have occurred at the site. These mounds would be investigated and remediated prior to demolition or construction.

#### ***No Action Alternative***

Site conditions would remain as they currently are under the No Action Alternative.

#### ***Alternative 1***

There is no evidence of former WWII structures being located at the Alternative 1 location.

Alternative 1 is located within former ERP Site 8, the Aircraft Burial Site (alleged), which is closed.

There are no known fuel storage areas, monitoring wells, or past range/UXO activities within the Alternative 1 location.

#### ***Alternative 2***

There is no evidence of former WWII structures being located at the Alternative 2 location.

Alternative 2 is not located within a former ERP site, although it is adjacent to ERP Site 3, Base Dump.

There are no known fuel storage areas, monitoring wells, or past range/UXO activities present in the Alternative 2 area.

### ***3.8.1.2    Logistics Readiness Complex***

The proposed Logistics Readiness Complex would contain a hazardous materials storage area. All hazardous materials would be stored in accordance with base regulations (i.e. secondary containment, or cabinet storage). Hazardous materials would be stored in such a manner as to prevent releases into floor drains, waterways, or soils.

#### ***Proposed Action***

There is no evidence of former WWII structures being located at the Proposed Action location.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

The Proposed Action is not located within a former ERP site.

There are no known fuel storage areas present in the Proposed Action area.

One groundwater well, LFW-6, associated with ERP Site 3, Base Dump, is located within 0.5 mile (0.9 km) from the Proposed Action location.

The Proposed Action overlaps part of the downrange footprint of the former skeet range. Previous analysis of aerial photography and soil sampling by Buckley AFB led to the conclusion that soil remaining in this portion of the range (east of Aspen Street) is not adversely impacted, so the downrange footprint of the former skeet range is not included in the MRP site.

### ***No Action Alternative***

Site conditions would remain as they currently are under the No Action Alternative.

### ***Alternative 1***

There is no evidence of former WWII structures being located at the Alternative 1 location.

The Alternative 1 is not located within a former ERP site. However, ERP Site 3, the Base Dump, is located to the south of the site.

There are no known fuel storage areas present in the Alternative 1 area.

No indication of monitoring wells, or past range/UXO activities were observed during the site visit.

### ***Alternative 2***

There is no evidence of former WWII structures being located at the Alternative 2 location.

Alternative 2 is not located within a former ERP site.

There are no known fuel storage areas present in the Alternative 2 area.

No indication of monitoring wells were observed during the site visit.

Alternative 2 overlaps the downrange footprint of the former skeet range. This portion of the range is included in the MRP site. The top 12 inches (30.5 centimeters) of soil may be contaminated with lead shot.

### ***3.8.1.3 Consolidated Services Facility***

#### ***Proposed Action***

A 2,000-gallon (7,570-liter) used oil tank is present at Building 340, adjacent to the west. A 4,000-gallon (15,140-liter) diesel tank, 4,000-gallon (15,140-liter) gasoline tank, 6,000-gallon (22,710-liter) diesel tank, and a 6,000-gallon (22,710-liter) gasoline tank are present at Building 341 to the west of the site. These tanks have secondary containment and do not have a history of spills.

Based on site reconnaissance and review of base documents, post-WWII buildings that had been constructed for troop housing and training on the proposed Consolidated Services Facility building area were demolished. The location of the debris is generally unknown. During the site reconnaissance, building foundations and construction and demolition debris were observed on the site. An outside

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

contractor recently performed sampling of the area. Of the total 81 samples that were collected at the site, all were non-detect for asbestos (Buckley AFB, 2004d; URS, 2004).

ERP Site 4, former Fire Training Area No. 3, is located to the east of the Proposed Action site. Depending on the final footprint of the building with associated parking structures etc. the facility may be located within ERP Site 4 boundaries. Depth to groundwater is estimated at 40 ft (12 m) below ground surface with groundwater flowing to the northwest. Groundwater contamination is presently within state drinking water standards. The presence of volatile organic compounds and total extractable petroleum hydrocarbons in the top 6 ft (1.8 m) of soil has been identified (Buckley AFB, 2004d). A contaminated soil removal action of this site will be completed late in 2005.

In 1997, 30-50 gallons (113.6-189 Liters) of hydraulic fluid was spilled east of Building 600 on Aspen Drive. Absorbent material was applied to the spill area. According to base records, other spills have also occurred north of the site.

### ***No Action Alternative***

Site conditions would remain as they currently are under the No Action Alternative.

### ***Alternative 1***

There is no evidence of former WWII structures being located at the Consolidated Services Facility Alternative 1 location.

The Consolidated Services Facility Alternative 1 is not located within a former ERP site, nor are there any known fuel storage areas present in the Alternative 1 area.

No indication of monitoring wells was observed during the site visit.

Alternative 1 overlaps the downrange footprint of the former skeet range. This portion of the range is included in the MRP site. The top 12 inches (30.5 centimeters) of soil may be contaminated with lead shot.

### ***Alternative 2***

There is no evidence of former WWII structures being located at the Alternative 2 location.

The Alternative 2 is not located within a former ERP site. However, former ERP Site 6 is located to the north of the Alternative 2 location.

There are no known fuel storage areas, monitoring wells, present in the Alternative 2 area.

Alternative 2 overlaps the downrange footprint of the former skeet range. Previous analysis by 460 CES/CEV of aerial photography and soil sampling led to the conclusion that health risk in this portion of the range (East of Aspen Street) is acceptable, so it is not included in the MRP site.

### ***3.8.1.4 Communication Center***

#### ***Proposed Action***

The potential exists for asbestos to occur at the Communication Center site, although there were no visual observations made on the site reconnaissance of building debris. Soil samples were recently collected from the site. All ten samples collected from the site were non-detect for asbestos. (URS 2004)

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

The Proposed Action is not located within a former ERP site, nor are there any known fuel storage areas, monitoring wells, or past or present range/UXO activities present in the Proposed Action area.

Two round concrete covers were observed on the site visit located north of the building.

### ***No Action Alternative***

Site conditions would remain as they currently are under the No Action Alternative.

### ***Alternative 1***

There is no evidence of former WWII structures being located at the Alternative 1 location.

Alternative 1 is not located within a former ERP site, nor are there any known fuel storage areas, monitoring wells, or past/present range/UXO activities present in the Alternative 1 area.

### ***Alternative 2***

Alternative 2 is similar to the existing environment presented for the Proposed Action.

## **3.8.2 Impacts**

This section discusses areas of potential environmental concern associated with the construction of the Proposed Action or action alternatives.

The Proposed Actions and alternatives are not expected to disturb PCB equipment, PCB-contaminated equipment, or PCB items, nor would it introduce any PCB-containing equipment to Buckley AFB. If equipment with PCBs are disturbed during construction or demolition, any associated wastes would be handled in accordance with applicable regulations. Therefore, PCBs are not discussed further.

### ***3.8.2.1 Small Arms Range***

#### ***Proposed Action***

No impacts are expected from asbestos or past ERP sites at the Proposed Action location.

Depending on the construction type of the facility, radon levels may have an impact to the facility. However, the facility will be engineered with controls to reduce radon levels so that there are no impacts.

The tanks located at the adjacent facility are most likely upgradient from the proposed construction area and should not impact construction of the Proposed Action.

Based on distance from the building footprint, the three old concrete pads observed at the site are not expected to be impacted during construction.

The soil mounds located on the site should be investigated further prior to construction in order to determine if they would impact construction activities.

No other hazardous material or waste impacts are expected at the Proposed Action location.

***No Action***

No direct impacts to hazardous materials and wastes are expected as a result of the No Action Alternative.

***Alternative 1***

No impacts are expected from asbestos or fuel storage tanks.

Impacts from radon would be similar to the Proposed Action.

Based on the status of ERP Site 8, the construction of Alternative 1 should not impact the site. No other hazardous material or waste impacts are expected at the Alternative 1 location.

***Alternative 2***

Impacts from radon would be similar to the Proposed Action.

Impacts are not expected from asbestos, former ERP sites, or fuel storage areas.

No other hazardous material or waste impacts are expected at the Alternative 2 location.

***3.8.2.2 Logistics Readiness Complex******Proposed Action***

No impacts are expected from asbestos, monitoring wells, or fuel storage areas.

Depending on the construction type of the facility, radon levels may have an impact to the facility. However, the facility will be engineered with controls to reduce radon levels so that there are no impacts.

Based on direction of groundwater flow and distance from ERP Site 3, the Base Dump, environmental concerns associated with Site 3 should not be a concern for the proposed building location.

Maps of the areas likely to contain remnants of skeet targets indicate that the area of construction falls to the east of any potentially affected area.

No other hazardous material or waste impacts are expected at the Proposed Action location.

***No Action***

No direct impacts to hazardous materials and wastes are expected as a result of the No Action Alternative.

***Alternative 1***

No impacts are anticipated from asbestos, fuel storage areas, or range/UXO activities.

Impacts from radon would be similar to the Proposed Action.

Based on direction of groundwater flow, northwest, at ERP Site 3 the Base Dump, is not anticipated to impact the construction of Alternative 1. However, exact boundaries of the Base Dump are not known and precautions should be taken during construction to avoid impacting known Base Dump areas.

No other hazardous material or waste impacts are expected at the Alternative 1 location.



## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Alternative 2***

No impacts are expected from asbestos, former ERP sites, fuel storage areas, monitoring wells.

Impacts from radon would be similar to the Proposed Action.

No other hazardous material or waste impacts are expected at the Alternative 2 location.

Remediation of soil contaminated with lead shot could potentially be required under the MRP.

Construction activities at Alternative 2 must take into consideration these remediation activities at the Former Skeet Range.

### ***3.8.2.3 Consolidated Services Facility***

#### ***Proposed Action***

Based on sampling results of the location, asbestos is not expected to present an environmental impact or constraint. However, based on the sample grid size, asbestos may still exist at the site and precautions should be taken during construction.

Depending on the construction type of the facility, radon levels may have an impact to the facility.

However, the facility will be engineered with controls to reduce radon levels so that there are no impacts.

Construction activities at the Proposed Action site must take into consideration the remediation activities scheduled to occur at ERP Site 4. Given this remediation, there should be no impacts to or from ERP Site 4.

Tanks located at adjacent facilities are down gradient from proposed construction, within secondary containment, and are not expected to present environmental impacts.

Past spills are not expected to impact the Proposed Action construction location. Should excavated soils be contaminated, they would be disposed of in accordance with all applicable regulations.

#### ***No Action***

No direct impacts to hazardous materials and wastes are expected as a result of the No Action Alternative.

### ***Alternative 1***

No impacts are expected from asbestos, former ERP sites, fuel storage areas, monitoring wells, or former.

Impacts from radon would be similar to the Proposed Action.

No other hazardous material or waste impacts are expected at the Alternative 1 location.

Remediation of soil contaminated with lead shot could potentially be required under the MRP.

Construction activities at Alternative 1 must take into consideration these remediation activities at the Former Skeet Range.

### ***Alternative 2***

No impacts are expected from asbestos, fuel storage, monitoring wells, or past or present range/UXO activities.

Impacts from radon would be similar to the Proposed Action.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

ERP Site 6 is closed and is not expected to impact the Alternative 2 location.

No other hazardous material or waste impacts are expected at the Alternative 2 location.

### ***3.8.2.4 Communications Center***

#### ***Proposed Action***

Based on sampling results of the location, asbestos is not expected to present an environmental impact or constraint. However, based on the sample grid size, asbestos may still exist at the site and precautions should be taken during construction.

Depending on the construction type of the facility, radon levels may have an impact to the facility. However, the facility will be engineered with controls to reduce radon levels so that there are no impacts.

There are no expected impacts from former ERP sites, fuel storage area, monitoring wells or past or present range/UXO activities.

#### ***No Action***

No direct impacts to hazardous materials and wastes are expected as a result of the No Action Alternative.

#### ***Alternative 1***

No impacts are expected from asbestos, former ERP sites, fuel storage areas, monitoring wells, or former range/UXO activities.

Impacts from radon would be similar to the Proposed Action.

No other hazardous material or waste impacts are expected at the Alternative 2 location.

#### ***Alternative 2***

The existing environment at Alternative 2 is the same as the Proposed Action.

Impacts at the Alternative 2 location would be similar to those presented for the Proposed Action.

## **3.9 SOLID WASTE AND POLLUTION PREVENTION**

The USAF Pollution Prevention (P2) Program encompasses a range of environmental management functions, including recycling, hazardous/toxic chemicals reduction, green (environmentally friendly) procurement, and waste minimization. The USAF Solid Waste Program deals specifically with the management and reduction of solid waste streams. Both of these programs may affect nearly every aspect of operations at Buckley AFB.

A private contractor provides solid waste collection and disposal services at Buckley AFB. Waste is collected from dumpsters located throughout the base and routinely transported to the Denver-Arapahoe Disposal Site in Arapahoe County. Buckley AFB generated approximately 1,500 tons of non-hazardous waste in FY02, with 0.6 tons of this waste being construction and demolition derived wastes.

Each AFB is required to have a Qualified Recycling Program (QRP), and all facilities at an installation must participate in the QRP. Under the QRP, readily accessible containers should be provided in work

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

areas as appropriate for the accumulation of the following recyclables: copier paper, plastic, metals, glass, used oil, lead acid batteries, cardboard, newspaper, and tires. A recycling contractor empties recycling containers on a regular schedule and recycles the collected materials.

Reduction of hazardous material use at USAF installations is normally achieved through the implementation of a hazardous materials pharmacy (HAZMART), a centralized location for inventory, control, and distribution of hazardous materials to authorized shops. Buckley AFB has a “virtual” HAZMART, meaning that the installation does not distribute hazardous materials from a central location, but instead tracks and controls use through a computerized tracking system. Reduction efforts focus on the “EPA 17” industrial toxics, seventeen compounds prioritized by USEPA for reduction due to particularly high associated environmental and human health hazards. Various initiatives are used to reduce use, including control of use through the chemical authorization process, limits on quantities distributed, and substitution of non-hazardous products. Ozone-depleting substances are also targeted for reduced use or substitution.

Green Procurement is the USAF initiative established to comply with federal Affirmative Procurement requirements. Green procurement seeks to direct USAF purchasing power toward the procurement of high recycled-content goods, from copier paper to construction materials.

### **3.9.1 Affected Environment**

The USAF P2 and Solid Waste Programs facilitate the reduction of solid waste (both hazardous and non-hazardous) through adjustments to the behaviors and work practices of facility personnel. The mission at Buckley AFB demands a variety of industrial and non-industrial facilities and processes. The P2 and Solid Waste Management Programs impact all of these, and would have impacts on operations at any new facilities constructed at Buckley AFB. New facilities would be required to participate in the same USAF P2 and solid waste management activities as similar existing facilities.

### **3.9.2 Impacts**

#### ***3.9.2.1 Small Arms Range***

##### ***Proposed Action***

Building construction and delivery of construction supplies would increase solid waste generation (e.g., concrete, building materials, any associated demolition debris) during the project performance period. Certain forms of construction-related solid waste might be eligible for diversion to recycling. Construction contractors should attempt to recycle waste materials for which a market exists, procure recycled-content materials whenever feasible per USAF Green Procurement requirements, minimize the use of hazardous materials during construction, and remove any unused hazardous and non-hazardous wastes at the conclusion of project performance.

Since the Proposed Action is limited to replacing an older facility at Buckley AFB with little or no change to existing personnel and operations, no significant changes to P2 initiatives or solid waste generation are anticipated following completion of construction as a result of the Proposed Action.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***No Action***

If the No Action Alternative is implemented, solid waste generation at Buckley AFB would not increase. Buckley AFB P2 solid waste management would be unaffected.

### ***Alternative 1***

Impacts from Alternative 1 would be the same as the Proposed Action.

### ***Alternative 2***

Impacts from Alternative 2 would be the same as the Proposed Action.

### ***3.9.2.2 Logistics Readiness Complex***

#### ***Proposed Action***

Building construction and delivery of construction supplies would increase solid waste generation (e.g., concrete, building materials, any associated demolition debris) during the project performance period. Certain forms of construction-related solid waste might be eligible for diversion to recycling.

Construction contractors should attempt to recycle waste materials for which a market exists, procure recycled-content materials whenever feasible per USAF Green Procurement requirements, minimize the use of hazardous materials during construction, and remove any unused hazardous and non-hazardous wastes at the conclusion of project performance.

Since the Proposed Action is limited to replacing an older facility at Buckley AFB with little or no change to existing personnel and operations, no significant changes to P2 initiatives or solid waste generation are anticipated following completion of construction as a result of the Proposed Action.

#### ***No Action***

If the No Action Alternative is implemented, solid waste generation at Buckley AFB would not increase. Buckley AFB P2 solid waste management would be unaffected.

#### ***Alternative 1***

Impacts from Alternative 1 would be the same as the Proposed Action.

#### ***Alternative 2***

Impacts from Alternative 2 would be the same as the Proposed Action.

### ***3.9.2.3 Consolidated Services Facility***

#### ***Proposed Action***

Building construction and delivery of construction supplies would increase solid waste generation (e.g., concrete, building materials, any associated demolition debris) during the project performance period.

## **SECTION THREE      Affected Environment and Environmental Consequences**

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Certain forms of construction-related solid waste might be eligible for diversion to recycling. Construction contractors should attempt to recycle waste materials for which a market exists, procure recycled-content materials whenever feasible per USAF Green Procurement requirements, minimize the use of hazardous materials during construction, and remove any unused hazardous and non-hazardous wastes at the conclusion of project performance.

Since the Proposed Action is limited to replacing an older facility at Buckley AFB with little or no change to existing personnel and operations, no significant changes to P2 initiatives or solid waste generation are anticipated following completion of construction as a result of the Proposed Action.

### ***No Action***

If the No Action Alternative is implemented, solid waste generation at Buckley AFB would not increase. Buckley AFB P2 solid waste management would be unaffected.

### ***Alternative 1***

Impacts from Alternative 1 would be the same as the Proposed Action.

### ***Alternative 2***

Impacts from Alternative 2 would be the same as the Proposed Action.

#### ***3.9.2.4 Communications Center***

### ***Proposed Action***

Building construction and delivery of construction supplies would increase solid waste generation (e.g., concrete, building materials, any associated demolition debris) during the project performance period. Certain forms of construction-related solid waste might be eligible for diversion to recycling. Construction contractors should attempt to recycle waste materials for which a market exists, procure recycled-content materials whenever feasible per USAF Green Procurement requirements, minimize the use of hazardous materials during construction, and remove any unused hazardous and non-hazardous wastes at the conclusion of project performance.

Since the Proposed Action is adding an addition to the existing facility at Buckley AFB with little or no change to existing personnel and operations, no significant changes to P2 initiatives or solid waste generation are anticipated following completion of construction as a result of the Proposed Action.

### ***No Action***

Under the No Action Alternative, solid waste generation at Buckley AFB would not increase. Buckley AFB P2 solid waste management would be unaffected.

### ***Alternative 1***

Impacts from Alternative 1 would be the same as the Proposed Action.



## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Alternative 2***

Impacts from Alternative 2 would be the same as the Proposed Action.

### **3.10 TRANSPORTATION**

This section presents information regarding traffic flow within Buckley AFB.

#### **3.10.1 Affected Environment**

Buckley AFB is situated within the Denver metropolitan area (Figure 1-1). Three major arterial routes surround Denver, including I-25, I-70, and I-76. A north-south trending road, I-225, runs between and connects I-25 and I-70. In addition, E-470, a toll road that runs north-south near the eastern boundary of Buckley AFB, provides an alternate beltway route around the eastern half of the Denver metropolitan area. Intersecting with I-225 running east-west are two major arteries, 6<sup>th</sup> Avenue and Mississippi Avenue; E-470 also provides access to these streets. Access to Buckley AFB is available via gates at the intersections of Aspen Street and 6<sup>th</sup> Avenue (North Gate), Aspen Street and Mississippi Avenue (South Gate), and Sixth Avenue and Telluride Avenue (Telluride Gate). Traffic through the Telluride gate is primarily Base Exchange/Commissary traffic, while munitions traffic enters the base through the east side. Aspen Street is a 4-lane, divided street running north to south from the North Gate to the South Gate. All vehicles entering and departing the installation must use Aspen Street. Breckenridge and Steamboat Avenues distribute traffic from Aspen Street to the major industrial and flightline areas.

##### ***3.10.1.1 Small Arms Range***

#### ***Proposed Action***

The primary point of egress under the Proposed Action would occur on Silver Creek Street, a one-way, two-lane asphalt roadway. This street provides the only access to the proposed site from the main base and creates a loop along the north side of the airfield.

#### ***No Action***

Traffic flows would be unchanged as a result of the No Action Alternative.

#### ***Alternative 1***

The primary point of egress under Alternative 1 would be the same as the Proposed Action.

#### ***Alternative 2***

The primary point of egress under Alternative 2 would be from Sunlight Way.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***3.10.1.2 Logistics Readiness Complex***

#### ***Proposed Action***

The primary point of egress under the Proposed Action would occur off of Aspen Street. This new, four-lane divided roadway has been programmed to accommodate future traffic increases. Aspen Street is oriented north-south and is directly accessible from the new site (Buckley AFB, 2004c).

#### ***No Action***

Traffic flows would be unchanged as a result of the No Action Alternative.

#### ***Alternative 1***

The primary point of egress under Alternative 1 would be from Sunlight Way.

#### ***Alternative 2***

The primary point of egress under Alternative 2 would be from Beaver Creek.

### ***3.10.1.3 Consolidated Services Facility***

#### ***Proposed Action***

The primary point of egress under the Proposed Action would occur from Breckenridge Avenue and A-Basin Avenue. Upon completion of the facility, the majority of patron parking would use A-Basin Avenue as the most convenient route into the parking area of the facility (Buckley AFB, 2004d).

#### ***No Action***

Traffic flows would be unchanged as a result of the No Action Alternative.

#### ***Alternative 1***

The primary point of egress under Alternative 1 would be from Beaver Creek.

#### ***Alternative 2***

The primary point of egress under Alternative 2 would occur off of Aspen Street. This new, four-lane divided roadway has been programmed to accommodate future traffic increases. Aspen Street is oriented north-south and is directly accessible from the Alternative 2 location.

## **SECTION THREE      Affected Environment and Environmental Consequences**

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### ***3.10.1.4 Communications Center***

#### ***Proposed Action***

The primary point of egress under the Communications Center Proposed Action would utilize the existing egress and would occur from Devil's Thumb Avenue, which intersects with Aspen Street. Additional staff would move from Building 950 to the Proposed Action location.

#### ***No Action***

Traffic flows would be unchanged as a result of the No Action Alternative.

#### ***Alternative 1***

The primary point of egress under Alternative 1 would be from Beaver Creek Road.

#### ***Alternative 2***

The primary point of egress under Alternative 2 would occur from Devil's Thumb Avenue, which intersects with Aspen Street.

### **3.10.2 Impacts**

Although traffic loads may increase slightly during construction, there would be no major changes to the existing traffic patterns, capacity, or volume. No new employees are expected to be brought onto base to staff the proposed facilities, and staff would move from existing facilities. Therefore, there would be minimal expected transportation impacts from any of the proposed projects. The access points for each new facility is briefly described for the Proposed Action and action alternative locations.

#### ***3.10.2.1 Small Arms Range***

##### ***Proposed Action***

Accessing the Proposed Action site would redirect traffic from the existing Small Arms Range location to the Proposed Action location. However, the number of people accessing the site daily would not have a major impact on traffic flow. Although traffic loads may increase slightly during construction, changes would be minimal to the existing traffic patterns, capacity, and volume. No new employees would be brought onto base to staff the proposed facility, as staff would be relocated from existing facilities. Therefore, transportation impacts as a result of the Proposed Action are expected to be minimal.

##### ***No Action***

No impacts are expected under the No Action Alternative, as no construction would occur.

##### ***Alternative 1***

Impacts from Alternative 1 would be the same as those listed for the Proposed Action.

***Alternative 2***

Accessing the Alternative 2 site would redirect traffic from the existing Small Arms Range location to the Alternative 2 location off of Sunlight Way. However, the number of people accessing the site daily would not have a major impact on traffic flow. Although traffic loads may increase slightly during construction, changes would be minimal to the existing traffic patterns, capacity, and volume. No new employees would be brought onto base to staff the proposed facility, as staff would be relocated from existing facilities. Therefore, transportation impacts as a result of Alternative 2 are expected to be minimal.

***3.10.2.2 Logistics Readiness Complex******Proposed Action***

Accessing the Proposed Action site would redirect traffic from the existing Logistics Readiness Complex location to the Proposed Action location. However, the number of people accessing the site daily will not have a major impact on traffic flow. Although traffic loads may increase slightly during construction, changes would be minimal to the existing traffic patterns, capacity, and volume. No new employees would be brought onto base to staff the proposed facility, as staff would be relocated from existing facilities. Therefore, transportation impacts as a result of the Proposed Action are expected to be minimal.

***No Action***

No impacts are expected under the No Action Alternative, as no construction would occur.

***Alternative 1***

Impacts from Alternative 1 would be the same as those listed for the Proposed Action.

***Alternative 2***

Impacts from Alternative 2 would be the same as those listed for the Proposed Action.

***3.10.2.3 Consolidated Services Facility******Proposed Action***

Accessing the Proposed Action site would redirect traffic from the existing Consolidated Services Facility location to the Proposed Action location. However, the number of people accessing the site daily would not have a major impact on traffic flow. Although traffic loads may increase slightly during construction, changes would be minimal to the existing traffic patterns, capacity, and volume. No new employees would be brought onto base to staff the proposed facility, as staff would be relocated from existing facilities. Therefore, transportation impacts as a result of the Proposed Action are expected to be minimal.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***No Action***

No impacts are expected under the No Action Alternative, as no construction would occur.

### ***Alternative 1***

Impacts from Alternative 1 would be the same as those listed for the Proposed Action.

### ***Alternative 2***

Impacts from Alternative 2 would be the same as those listed for the Proposed Action.

#### ***3.10.2.4 Communications Center***

### ***Proposed Action***

Traffic patterns may incur slight changes with the relocation of staff, but impacts are expected to be minimal. Traffic loads may increase slightly during construction, and there would be minimal changes to the existing traffic patterns, capacity, and volume. No new employees would be brought onto base to staff the proposed facility, as staff would be relocated from existing facilities. Therefore, impacts to transportation impacts as a result of the Proposed Action are expected to be minimal.

### ***No Action***

No impacts are expected under the No Action Alternative, as no construction would occur.

### ***Alternative 1***

Accessing the Alternative 1 location will redirect traffic from the existing Communications Center location to the Alternative 1 location. However, the number of people accessing the site daily will not have a major impact on traffic flow. Although traffic loads may increase slightly during construction, changes will be minimal to the existing traffic patterns, capacity, and volume. No new employees would be brought onto base to staff the proposed facility, as staff will be relocating from existing facilities. Therefore, transportation impacts as a result of Alternative 1 are expected to be minimal.

### ***Alternative 2***

Impacts from Alternative 2 would be the same as those listed for the Proposed Action.

## **3.11 UTILITIES**

### **3.11.1 Affected Environment**

Public providers supply water, gas, and electrical power to Buckley AFB. Since 2001 Buckley AFB has been proactive in increasing the capacity of its infrastructure systems.



## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***Water System***

Potable water is provided by the city of Aurora directly to Buckley AFB facilities without supplementary treatment. There are two connections to the city pipelines: (1) along 6<sup>th</sup> Avenue, a water main connects to a line that provides the primary source of potable water to the installation; and (2) along Mississippi Avenue, a water main provides emergency backup should the water main on 6<sup>th</sup> Avenue fail. There are no contractual limits on the amount of water the installation may use (Buckley AFB, 2002).

### ***Sanitary Sewer***

Wastewater flow from Buckley AFB is conveyed through an on-base sanitary sewer system to the city of Aurora's wastewater collection system, and then to one of two wastewater treatment facilities. The majority of the installation's sanitary sewer system is composed of vitrified clay pipe, which was installed in the 1940s and 50s. The more recently installed sections of sewer main are polyvinyl chloride pipe, which is now used for all sewer upgrades on the installation (Buckley AFB, 2002). The wastewater is primarily directed to and treated at the city of Denver's Metro Wastewater Reclamation District, located at 64th Avenue and York Street. The city of Aurora's total flow contribution to this treatment facility ranges between 18 and 20 million gallons per day. The other treatment facility, the Sand Creek Treatment Facility, is owned and operated by the city of Aurora and processes approximately 10 percent of Aurora's total discharge (Farrington, 2005).

### ***Storm Drainage***

Stormwater is collected and transmitted through a system of surface ditches and channels. An underground storm drainage system has been installed around the runway, portions of the taxiways, and the hangars and facilities north of the Main Ramp. These structures direct stormwater to the adjoining areas of the city of Aurora, East Toll Gate Creek, or the stormwater detention pond located east of Aspen Street and south of Steamboat Avenue. There are two primary drainage basins-the Sand Creek basin and the East Toll Gate Creek Basin. The dividing line between them runs roughly parallel and east of Runway 14/32 (Buckley AFB, 2002).

### ***Electrical System and Natural Gas***

Buckley AFB receives electrical power and natural gas from Xcel Energy (Buckley AFB, 2002).

## **3.11.2 Impacts**

Issues and concerns regarding infrastructure are related to creating stress on infrastructure systems, such that the existing infrastructure must be updated or changed. Assessing impacts to infrastructure entails a determination of infrastructure that would be used as a result of the Proposed Action or action alternatives.

### ***3.11.2.1 Small Arms Range***

### ***Proposed Action***

Site utilities are not currently available at the Proposed Action site. Water would need to come from either an existing well in the area or from a new well. Because sanitary sewer service is not available at the Proposed Action location, it is assumed, based on distance from available sewer lines, that leach fields

## **SECTION THREE**

## **Affected Environment and Environmental Consequences**

---

would be used for sewerage disposal. Electrical service has been extended to the project area through a FY04 project. Natural gas is remote from the complex and would require an extension of the main to reach the site. Communications would need to be served from adjacent buildings or new trunk lines would need to be installed (Buckley AFB, 2004b).

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of the Proposed Action.

The leach field associated with the Proposed Action site would utilize state of the art technology in order to prevent impacts to ground or surface water. Based on the assumption that the leach field will be in compliance with all applicable regulations and would be monitored frequently, impacts from the leach field are not expected.

### ***No Action***

The No Action Alternative would have no impact on utilities.

### ***Alternative 1***

Alternative 1 for the Small Arms Range would require the same utilities as the Proposed Action. However, depending on the final footprint of Alternative 1, utilities may need to be extended to the site. According to utility maps in the Buckley AFB General Plan, there are no sanitary sewer lines or natural gas lines distributed to the Alternative 1 location area; however, electrical lines are distributed within the vicinity of the area. Because sanitary sewer service is not available, at the Alternative 1 location, it is assumed, based on distance from available sewer lines, that leach fields would be used for sewerage disposal.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of Alternative 1.

### ***Alternative 2***

Alternative 2 for the Small Arms Range would require the same utilities as the Proposed Action. However, depending on the final footprint of Alternative 2, utilities may need to be extended to the site. According to utility maps in the Buckley AFB General Plan, there are no water, sanitary sewer lines, or natural gas lines distributed to the Alternative 2 location; however, electric lines are distributed within the vicinity of the area. Because sanitary sewer service is not available, at the Alternative 2 location, it is assumed, based on distance from available sewer lines, that leach fields would be used for sewerage disposal.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of Alternative 2.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***3.11.2.2 Logistics Readiness Complex***

#### ***Proposed Action***

Existing utilities for the Proposed Action location run along the east side of Aspen Street. Potable water service is supplied by a main line. A new sanitary sewer main is being installed for the new Wing Headquarters Project. Sanitary sewer tie-ins shall be provided from the new Logistics Readiness Complex to the new main in Aspen Street (Buckley AFB, 2004c).

There is an existing storm sewer that runs along the east side of Aspen Street. New underground storm lines shall be provided from the new Logistics Readiness Complex to the existing main, as well as underground drainage from the sloped loading dock area. All parking and loading dock areas shall have the paving sloped to drop or curb inlets where the flow shall be directed by underground piping to the stormwater main. (Buckley AFB, 2004c)

An existing gas line runs along the east side of Aspen Street.

There is an existing underground electrical service line.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of the Proposed Action.

#### ***No Action***

The No Action Alternative would have no impact on utilities.

#### ***Alternative 1***

Alternative 1 would require the same utilities as the Proposed Action. However, depending on the final footprint of Alternative 1, utilities may need to be extended to the site. According to utility maps in the Buckley AFB General Plan, there are no sanitary sewer lines, electrical lines, or natural gas lines distributed to the Alternative 1 location area.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of the Alternative 1.

#### ***Alternative 2***

Alternative 2 would require the same utilities as the Proposed Action. However, depending on the final footprint of Alternative 2, utilities may need to be extended to the site. According to utility maps in the Buckley AFB General Plan, there are no water, sanitary sewer lines, or natural gas lines distributed to the Alternative 2 location; however, electrical lines are distributed within the vicinity of the area.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of the Alternative 2.

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

### ***3.11.2.3 Consolidated Services Facility***

#### ***Proposed Action***

For potable and fire protection water, the new facility would need to access the existing direct connection pipe located both on the west side of Aspen Street and along the south side of Breckenridge Avenue (Buckley AFB, 2004d).

The new facility would access electrical power via the existing underground lines that parallel A-Basin Avenue and then run to the center of the site (Buckley AFB, 2004d).

The natural gas connection to the facility would access the current natural gas line running along the east side of Aspen Street, parallel to A-basin Avenue and north of Breckenridge Avenue (Buckley AFB, 2004d).

Currently, there is a sanitary sewer line in the middle of the site flowing south to an east-west line near A-basin Avenue. The existing storm sewer is an open ditch with concrete culverts along Breckenridge Avenue and A-Basin Avenue (Buckley AFB, 2004d).

Should the final building location be situated farther than 150 ft from the access road, a fire hydrant needs to be included in the project (Buckley AFB, 2004d). The location and available capacity of the existing infrastructure systems support the Proposed Action location for the Consolidated Services Facility.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of the Proposed Action.

#### ***No Action***

The No Action Alternative would have no impact on utilities.

#### ***Alternative 1***

Alternative 1 would require the same utilities as the Proposed Action. However, depending on the final footprint of Alternative 1, utilities may need to be extended to the site. According to utility maps in the Buckley AFB General Plan, there are no water, sanitary sewer lines, or natural gas lines distributed to the Alternative 1 location area; however, electric lines are distributed within the vicinity of the area.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of Alternative 1.

#### ***Alternative 2***

Alternative 2 would require the same utilities as the Proposed Action. However, depending on the final footprint of Alternative 2, utilities may need to be extended to the site. According to utility maps in the Buckley AFB General Plan, utilities exist along the eastern side of Aspen Street. New water lines, sanitary sewer line tie-ins and underground storm lines, gas lines, and electrical service would be provided to the facility from the existing utilities along Aspen Street.

## **SECTION THREE      Affected Environment and Environmental Consequences**

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No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of Alternative 2.

### ***3.11.2.4 Communications Center***

#### ***Proposed Action***

The Proposed Action is an addition to the existing facility. Therefore, utilities already exist and would be utilized from the existing facility.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. Therefore, no adverse impacts are anticipated on utilities as a result of the Proposed Action.

#### ***No Action***

The No Action Alternative would have no impact on utilities.

#### ***Alternative 1***

Alternative 1 would have the same needs for utilities as the Proposed Action. However, depending on the final footprint of Alternative 1, utilities may need to be extended to the site. According to utility maps in the Buckley AFB General Plan, water lines, electrical lines, and natural gas lines exist within the area; however, there are no sanitary sewer lines distributed within the vicinity of the Alternative 1 area.

No burden on the provider of utility support is anticipated because there is no anticipated increase in base personnel and spaces previously heated are being consolidated. However, the base would need to upgrade the potable water, electric, natural gas, and sanitary networks. Therefore, no adverse impacts are anticipated on utilities as a result of the Alternative 1.

#### ***Alternative 2***

Alternative 2 includes the demolition of the existing Communications Center and the construction of a new center at the same location. Therefore, utilities present for the existing facility would also be utilized for the new facility. No new utilities should have to be installed for the new facility under this Alternative.

Impacts would be the same as the Proposed Action.

## **3.12 ENVIRONMENTAL JUSTICE**

*EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The environmental effect of federal actions, including human health, and economic and social effects on minority communities and low-income communities, are analyzed under this regulation. The existing environmental justice conditions were analyzed using the United States Census 2000 summary data in accordance with the methods presented in the 1997 Air Force publication:



## SECTION THREE Affected Environment and Environmental Consequences

*“Interim Guide for Environmental Justice Analysis with the Environmental Impact Analysis Process”* (Air Force, 1997).

Minority and low-income populations are defined as follows:

- Minority population refers to persons who are African American; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; Other; and of Hispanic origin in census data and exceeding 50 percent of the population in an area or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population.
- Low-income refers to household income at or below the Department of Health and Human Services poverty guidelines or the Community Development block Grant thresholds. Individuals falling below the poverty threshold are considered low-income individuals.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directs federal agencies to (1) identify and assess environmental health risks and safety risks that may disproportionately affect children, and (2) ensure that policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

### 3.12.1 Affected Environment

The demographic profile of Arapahoe County, Colorado, according to the United States Census Bureau 2000 is shown in Table 3-12.

**Table 3-12. Racial Makeup of Arapahoe County, Colorado 2000**

Race	Percent of Population in Arapahoe County
Caucasian	79.9
Persons of Hispanic origin (of any race)	11.8
American Indian and Alaskan Native	0.7
Asian	3.9
African American	7.7
Native Hawaiian and Other Pacific Islander	0.1
Some other race	4.5
Two or more races	3.2
<b>Total Minority Population</b>	<b>31.9</b>

Source: 2000 US Census Bureau

Notes: the numbers may not add up to 100 percent because, according to the US Census Bureau, Hispanic origin is not a race, and persons of Hispanic origin may be of any race.

In 2000, Arapahoe County had a population of 487,967 that was expected to increase by approximately 7.1 percent to 522,812 in 2004.

According to the United States Census 2000, 5.8% of the Arapahoe County population lives below the 2000 poverty level of \$8,794 (for an individual) or \$13,738 (family of three) (Buckley AFB, 2004e). Of the six census tracts surrounding Buckley AFB, four exceed the 5.8% poverty level mark. Analysis of the 2000 US Census Bureau data indicates that minorities constitute approximately 31.9% of the population in Arapahoe County. Analysis of the minority constituency of Arapahoe County within the six census tracts surrounding Buckley AFB determined that minorities comprised 24.7% of the six census tracts. (Buckley AFB, 2004e)

### **3.12.2 Impacts**

Based on federal guidance, there would be adverse impacts if minority and/or low-income populations felt a disproportionate amount of the adverse effects of the actions. The ROI analyzed included Buckley AFB and areas immediately surrounding the base.

#### ***3.12.2.1 Small Arms Range***

##### ***Proposed Action***

Under the Proposed Action, construction of the Small Arms Range would result in ground disturbance located entirely within the boundaries of Buckley AFB, having minimal impacts to environmental resources. Surveys have documented that there are no wetlands, threatened or endangered species, or cultural resources present in the project area. Noise and air emissions (primarily PM10 and fugitive dust) would be short-term and temporary and are not expected to adversely impact any residents or workers. Standard construction practices would be implemented to minimize dust. No hazardous substances would be stored at or transported to the site. There are no surface water bodies near the site. Military family housing is being constructed at this time; however, no family populations on base would be impacted by the Proposed Action. Furthermore, the Proposed Action would not pose a health risk to children. Because there would be no adverse environmental impacts, there would be no disproportionately high and adverse effects on minority or low-income populations of all ages under the Proposed Action.

##### ***No Action***

The No Action Alternative would not change existing conditions on Buckley AFB; therefore, there would be no disproportionate impacts to environmental justice populations and children.

##### ***Alternative 1***

Impacts at the Alternative 1 location would be the same as the Proposed Action.

##### ***Alternative 2***

Impacts at the Alternative 2 location would be the same as the Proposed Action.

#### ***3.12.2.2 Logistics Readiness Complex***

##### ***Proposed Action***

Under the Proposed Action, construction of the Logistics Readiness Complex would result in ground disturbance located entirely within the boundaries of Buckley AFB, having minimal impacts to environmental resources. Surveys have documented that there are no wetlands, threatened or endangered species, or cultural resources present in the project area. Noise and air emissions (primarily PM10 and fugitive dust) would be short-term and temporary and are not expected to adversely impact any residents or workers. Standard construction practices would be implemented to minimize dust. Hazardous substances would be stored at or transported to the site; however, they will be stored and transported according to base regulations. There are no surface water bodies near the site. No military family housing is currently located on Buckley; therefore, no family populations on base would be impacted by

## **SECTION THREE      Affected Environment and Environmental Consequences**

---

the Proposed Action. Furthermore, the Proposed Action would not pose a health risk to children. Because there would be no adverse environmental impacts, there would be no disproportionately high and adverse effects on minority or low-income populations of all ages under the Proposed Action.

### ***No Action***

The No Action Alternative would not change existing conditions on Buckley AFB; therefore, there would be no disproportionate impacts to environmental justice populations and children.

### ***Alternative 1***

Impacts at the Alternative 1 location would be the same as the Proposed Action.

### ***Alternative 2***

Impacts at the Alternative 2 would be the same as the Proposed Action.

### ***3.12.2.3 Consolidated Services Facility***

#### ***Proposed Action***

Under the Proposed Action, construction of the Consolidated Services Facility would result in ground disturbance located entirely within the boundaries of Buckley AFB, having minimal impacts to environmental resources. Surveys have documented that there are no wetlands, threatened or endangered species, or cultural resources present in the project area. Noise and air emissions (primarily PM10 and fugitive dust) would be short-term and temporary and are not expected to adversely impact any residents or workers. Standard construction practices would be implemented to minimize dust. No hazardous substances would be stored at or transported to the site. There are no surface water bodies near the site. No military family housing is currently located on Buckley; therefore, no family populations on base would be impacted by the Proposed Action. Furthermore, the Proposed Action would not pose a health risk to children. Because there would be no adverse environmental impacts, there would be no disproportionately high and adverse effects on minority or low-income populations of all ages under the Proposed Action.

#### ***No Action***

The No Action Alternative would not change existing conditions on Buckley AFB; therefore, there would be no disproportionate impacts to environmental justice populations and children.

#### ***Alternative 1***

Impacts at the Alternative 1 location would be the same as the Proposed Action.

#### ***Alternative 2***

Impacts at the Alternative 2 location would be the same as the Proposed Action.

## **SECTION THREE      Affected Environment and Environmental Consequences**

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### ***3.12.2.4 Communications Center***

#### ***Proposed Action***

Under the Proposed Action, construction of the Communications Center would result in ground disturbance located entirely within the boundaries of Buckley AFB, having minimal impacts to environmental resources. Surveys have documented that there are no wetlands, threatened or endangered species, or cultural resources present in the project area. Noise and air emissions (primarily PM10 and fugitive dust) would be short-term and temporary and are not expected to adversely impact any residents or workers. Standard construction practices would be implemented to minimize dust. No hazardous substances would be stored at or transported to the site. There are no surface water bodies near the site. No military family housing is currently located on Buckley; therefore, no family populations on base would be impacted by the Proposed Action. Furthermore, the Proposed Action would not pose a health risk to children. Because there would be no adverse environmental impacts, there would be no disproportionately high and adverse effects on minority or low-income populations of all ages under the Proposed Action.

#### ***No Action***

The No Action Alternative would not change existing conditions on Buckley AFB; therefore, there would be no disproportionate impacts to environmental justice populations and children.

#### ***Alternative 1***

Impacts at the Alternative 1 location would be the same as the Proposed Action.

#### ***Alternative 2***

Impacts at the Alternative 2 location would be the same as the Proposed Action.

The CEQ regulations require assessment of cumulative impacts in the decision-making process for Federal projects. Cumulative impacts are defined as “the impact on the environment which results result from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively substantial actions undertaken over a period of time by various agencies or individuals. Informed decisionmaking is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

## 4.1 IMPACT ANALYSIS

Other projects evaluated in the cumulative impact analysis include planned or reasonably foreseeable projects both on Buckley AFB and off base. Planned or reasonably foreseeable projects were identified through a review of public documents and coordination with multiple agencies, and include both on- and off-base activities.

**Off-Base Activities.** The land adjacent to Buckley AFB is split between developed, agricultural, and grassland conservation areas. The city of Aurora’s *2003 Comprehensive Plan* identifies three planning areas near the base, each with its own identity and planned development pattern.

*Colfax Corridor East of I-225.* This area is adjacent to the northern boundary of Buckley AFB. The properties along Colfax Avenue tend to include older commercial uses, while many are vacant. The Northeast Colfax Area also includes the neighborhoods that are north and south of the corridor. Strategies identified in the 2003 Comprehensive Plan by the city of Aurora for development in this area include:

- Working to enhance open space corridors through additional dedications or other means
- Confining non-residential uses to the corridor and to planned industrial areas, with the exception of neighborhood commercial or neighborhood institutional uses
- Locating multi-family and attached housing in appropriate areas, including adjacent to major streets, similar existing housing types, and other corridor properties
- Promoting infill development in residential neighborhoods, maintaining the overall average residential density close to the current benchmarks
- Encouraging and supporting the consolidation of parcels in the corridor to allow well-planned businesses or mixed-use projects

Active development proposals within the Colfax Corridor East of I-225 include:

- Monterrey Point – an approved, but not currently constructed, residential community, containing approximately 354 units located near East Colfax and Sable Road
- Colfax Mini Mall – an approved, but not currently constructed, project, located on East Colfax near I-225
- Eastpark 70 – an 110-acre (44.6-hectare) industrial park, currently being constructed at Smith Road and Sky Ranch
- Cottage Grove – a residential development with approximately 104 units, currently under construction at Chambers Road at East 17<sup>th</sup> Avenue
- Cadence Retail – currently under construction, located at East Colfax and Eagle.

*I-225 Corridor and City Area.* This area is west of Buckley AFB and is associated with I-225 and the Aurora City Center. The I-225 corridor is the geographic center of the city of Aurora, and on the east side of the highway, the Aurora Mall, Aurora City Place, and Abilene power corridors comprise a regional retail location. Midway in the corridor lies the Aurora City Center, historically planned as the city's "downtown." Strategies identified by the city of Aurora for development in this area include:

- Continuing to work for transportation improvements including improvements to interchanges and Park-n-Ride locations
- Developing a strategy to encourage adaptive reuse of empty big box retail buildings
- Encouraging additional retail and medical-related office development in the corridor
- Working to expand the restaurant node at Iliff Avenue

Important development associated with the City Center includes the Aurora Municipal Center (completed), Arapahoe County administrative annex (complete), new ADT company office building, a 355-unit townhouse and elevator apartment complex (The Village), a 225-residential unit project (The Retreat at City Center), and a revitalization of the Aurora Mall. Additionally, the Regional Transportation District (RTD) purchased property for and began construction on a new bus transfer facility at the City Center. The RTD plans to relocate its bus transfer facility here, and a light rail station could be constructed in the future. Finally, a much smaller single-family housing development comprising 36.5 acres (14.8 hectare) is under construction approximately 0.5 mile (0.8 km) west of Buckley AFB (460 CES/CEV, 2004).

*E-470 Corridor Area.* This area is adjacent to the eastern and extreme southern boundary of Buckley AFB and includes the prairie areas east of the developed portion of the city where development is expected through 2020. The major feature of this area is the E-470 corridor from Denver International Airport in the north to Douglas County in the south. E-470 is a major interstate running north-south near the eastern boundary of Buckley AFB. The 1999 completion of the E-470 segment serving the Buckley AFB area, and the subsequent Jewell Avenue Extension, provides the base with major highways on both its east and west sides with access to both the north and south gates. The E-470 toll road also provides a major regional beltway connecting the northern and southern limits of the metropolitan area and linking Denver International Airport with the I-25 corridor, opening significant amounts of vacant land for development. The city of Aurora *E-470 Corridor Land Use Study* identifies regional activity centers and the following theme areas within the corridor (460 CES/CEV, 2004):

- Airport Corporate
- Airport Commercial/Distribution
- Regional Retail/Commercial
- Light Industrial/Flex Office
- Buckley Research and Development
- Residential
- Regional Park and Open Space
- Recreation/Entertainment

Strategies identified by the city of Aurora for development in the E-470 Corridor Area include locating a major office park, retail centers, and airport-related activities in the corridor and working with the counties to ensure that critical, undeveloped enclaves of land in the corridor are annexed into Aurora.



One of the more significant proposed developments within the E-470 Corridor area is the Horizon City Center, a 503-acre (203.7-hectare) mixed use commercial, retail, and residential project located on the southwest corner of I-70 and E-470, within approximately one mile of Buckley AFB.

Planned land use for the entire area abutting the eastern boundary of Buckley AFB is to incorporate the Buckley Research and Development theme. Small-scale office development is allowed to complement the Research and Development land use, and limited industrial and commercial services are permitted. Regionally, a residential development comprising 435 acres (176 hectares) is currently under construction within 0.5 mile (0.8 km) of the southern limits of Buckley AFB. Just east of this development, a 490-acre (198-hectare) residential development is also under construction (460 CES/CEV, 2004).

**On-Base Activities.** Land use planning at Buckley AFB follows a rational and sequential decision-making process to reach a consensus for future growth while ensuring the efficient and compatible use of available land. The land use planning process establishes long-range goals and provides starting points to discuss land acquisition or disposal actions and siting of new facilities. This planning helps to define the best layout of land uses and transportation corridors to support functional effectiveness, efficiency, and compatibility. Both on- and off-base factors are considered. Land use planning guides infill development on currently vacant land, functional consolidation, and redesignation of land uses to accommodate doubling of the base's current population (460 CES/CEV, 2004).

There are several existing and planned Capital Improvement Projects to support Buckley AFB's recent transition from an Air National Guard (ANG) base to an AFB and to facilitate future growth (BAFB 2002c). Currently, military family housing is being constructed on base. In November 2003, Buckley AFB completed an EA on the third phase of a four-phase, multiyear infrastructure upgrade and expansion program. Proposed activities included upgrades to the base's natural gas and electrical distribution systems, water and wastewater systems, and the roadway and circulation system. Other activities scheduled for 2004 included 13 projects totaling approximately 999,000 ft<sup>2</sup>. These projects include adding to or altering access roads to the airfield and repairing parking lots. Activities scheduled for 2005 include 16 projects totaling approximately 380,000 ft<sup>2</sup>. These projects include athletic fields, Army Aviation Support Facility, and Vail Street improvements. Activities scheduled for 2006 include 19 projects totaling approximately 158,000 ft<sup>2</sup>. These projects include an operations facility, youth center, and the demolition of Warehouse 1011 (460 CES/CEV, 2004). Table 4-1 summarizes potential cumulative effects on resources from the Proposed Action to construct and operate a Small Arms Range Complex, a Logistics Readiness Complex, a Consolidated Services Facility, and a Communications Center at Buckley AFB, when combined with other past, present and future activities. As indicated in Table 4-1, significant impacts to resources are not expected from the proposed projects.

**Table 4-1. Cumulative Impacts on Resources**

Resource	Past Actions	Current Background Activities	Proposed Actions	Known Future Actions	Cumulative Effects
Land Use	Development of Aurora and Buckley AFB has extensively modified land use.	Military installations, commercial, residential, light industrial land uses.	Change from open space to industrial/administrative purposes conforms with the Buckley AFB General Plan.	Expansion of Aurora east of Buckley AFB	Changes to existing land use would have negligible effect on base or non-military lands surrounding Buckley AFB.
Socioeconomics	Buckley AFB contributes to local economic community.	Continued support of local economic community.	Minor contribution to local construction industry.	Continued development of Buckley AFB would impact local economy and services.	Minor stimulation of local economy, including schools and housing, in context of increased development of Buckley AFB.
Air Quality	Non-attainment area for CO and maintenance area for O <sub>3</sub> and PM <sub>10</sub> .	Emissions from aircraft, vehicles, and buildings.	Potential dust emissions during soil removal, site grading and construction, and increased vehicle traffic.	Growth at Buckley AFB and Aurora will result in increased traffic and emissions.	Continued maintenance area for CO, O <sub>3</sub> and PM <sub>10</sub> . Minor effect.
Noise	Aircraft activities are dominant noise source.	Aircraft activities are dominant noise source.	Short-term noise from construction activities.	Base growth will result in increased traffic and noise.	Aircraft activities would be dominant noise source. Negligible effect.
Soils	Past urban and Buckley AFB development has modified soils.	None.	Grading, excavating, and soil recontouring would result in further soil disturbance.	Continued development of Buckley AFB would locally impact soils.	Impacts would be permanent but localized. Negligible effect.
Water Resources	Surface water quality moderately impacted by development and past disposal practices.	Surface water quality moderately impacted by development.	Potential sedimentation from construction and minor increase in impervious surface area.	Continued development of Buckley AFB would result in sedimentation from construction and increase in impervious surface areas.	Increased impervious area would have minor impacts on storm water discharges and water quality.
Biological Resources	Degraded historic habitat of sensitive and common wildlife species.	Buckley AFB and Aurora operations and development impact wildlife and their habitat.	Minor disturbance of vegetation by construction (approximately 4.95 acres [2.00 hectares]). Permanent loss of black-tailed prairie dogs and their habitat.	Continued development of Buckley AFB would impact vegetation communities and wildlife habitat.	Permanent loss of vegetation and low-quality habitat. Permanent loss of Black-tailed prairie dogs and their habitat. Minor effect.

**Table 4-1. Cumulative Impacts on Resources**

Resource	Past Actions	Current Background Activities	Proposed Actions	Known Future Actions	Cumulative Effects
Hazardous Materials and Waste			Potential short- and/or long-term impacts due to presence of ACM, radon, ERP Site 4, and residual USTs and piping in soil.	Continued development of Buckley AFB would incur use or generation of hazardous materials and wastes.	Negligible effect since all hazardous materials and wastes used or generated during project implementation would be used and disposed of according to all applicable regulations.
Solid Waste and Pollution Prevention			No major changes to P2 initiatives or solid waste generation are anticipated following construction activities.		
Transportation			Consistent with Buckley AFB General Plan, thus, negligible impact to current or planned activities on base or in Aurora due to changing traffic patterns, capacity, and volume.	Continued development of Buckley AFB and Aurora would result in increased traffic.	Increased traffic would have minor impact on transportation network. Negligible effect.
Utilities			Buckley AFB would need to upgrade the potable water, electric, natural gas, and sanitary networks. No adverse impacts are anticipated on utilities.	Continued development of Buckley AFB and Aurora would result in a continued increase in utility demands.	Increased demand for public utility services would not be a major impact to regional or local energy supplies.
Environmental Justice	Past impacts to Environmental Justice populations have been dependant on resource areas impacted by past projects.		No adverse impacts are anticipated to low-income or minority populations.	No adverse impacts are anticipated to low-income or minority populations.	No adverse impacts are anticipated to low-income or minority populations.

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## SECTION FIVE

## List of Preparers

This EA has been prepared under the direction of DoD and Buckley AFB. The individuals who contributed to the preparation of this document are listed below.

Name	Degree	Expertise	Years of Experience
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Kathryn Fontaine	B.S., Civil Engineering	Air Quality	16
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## SECTION SIX

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## **SECTION SIX**

### **Distribution List and Agencies and Individuals Contacted**

---

Denver Public Library  
Government Documents Section  
10 West 14<sup>th</sup> Avenue  
Denver, CO 80204

University Government Public Library  
Campus Box 184  
Boulder, CO 80309-0184

Aurora Central Library  
14949 East Alameda Drive  
Aurora, CO 80012

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**Appendix A**  
**Air Force 813 Form**



# REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol  
CRWU53006

INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on Separate Sheets as necessary. Reference appropriate item number(s).

## SECTION I - PROPONENT INFORMATION

1. TO (Environmental Planning Function)  
460 CES/CEV

2. FROM (Proponent organization and functional address symbol)  
460 CES/CEC

2a. TELEPHONE NO.  
303-677-6819

3. TITLE OF PROPOSED ACTION  
Communications Center

4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date).  
Provide a communications center capable of receiving and transmitting fast, secure voice and data signals throughout DoD. Provide electronic equipment, information management and visual information services for the base.

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPPA) (Provide sufficient details for evaluation of the total action).  
See attached

6. PROPONENT APPROVAL (Name and Grade)  
Charles Nicely, GS-11

6a. SIGNATURE

*Charles Nicely*

6b. DATE

26 Apr 02

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = Unknown effect).

+ 0 - U

7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)

X

8. AIR QUALITY (emissions, attainment status, state implementation plan, etc.) Fugitive dust during construction

X

9. WATER RESOURCES (Quality, quantity, source, etc.) Stormwater during and after construction

X

10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.)

X

11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)

X

12. BIOLOGICAL RESOURCES (Wetlands/floodplains, flora, fauna, etc.)

X

13. CULTURAL RESOURCES (Native American burial sites, archeological, historical, etc.)

X

14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)

X

15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)

X

16. OTHER (Potential impacts not addressed above.)

X

## SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. ☐ PROPOSED ACTION QUALIFIES FOR A CATEGORICAL EXCLUSION (CATEX #) \_\_\_\_\_ OR  
☒ PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION  
(Name and Grade)

Elise L. Sherva, GS-12

19a. SIGNATURE

*Elise L. Sherva*

19b. DATE

30 Apr 02



AF Form 813 Continuation

Project Title: Communications Center

Proposed Action: Construct a 37,738 sf addition to bldg Communications Center bldg 730. Alter Bldg 730

Alternative Action 1: Construct totally new Communications Center

No Action Alternative: A Communications Center would not be constructed and telephone and data communication would continue to be slow and unreliable.

ENVIRONMENTAL CONSEQUENCES:

This action will require the removal and relocation of prairie dogs. This requires the approval and consultation with the Natural Resources Manager: 7-69337

This action cannot occur when burrowing owls are in residence in the prairie dog burrows.




## REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol  
CRWU063008


INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on Separate Sheets as necessary. Reference appropriate item number(s).

## SECTION I - PROPONENT INFORMATION

1. TO (Environmental Planning Function)	2. FROM (Proponent organization and functional address symbol)	2a. TELEPHONE NO.
460 CES/CEV	460 CES/CEC	303-677-6819
3. TITLE OF PROPOSED ACTION Small Arms Range		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date). Construct a 23-position Indoor Small Arms Range, a 2 position Outdoor Grenade Launcher Range, and a Combat Arms Training and Maintenance (CATM) facility. The project is required to ensure weapons proficiency of assigned military personnel. The project will replace the current outdoor firing range and includes demolition and lead remediation of the current range. The project is required to replace facilities that do not comply with current AF criteria for range construction.		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPPA) (Provide sufficient details for evaluation of the total action). See attached		

6. PROPONENT APPROVAL (Name and Grade)	6a. SIGNATURE	6b. DATE				
Charles Nicely, GS-11		16 Jan 04				
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = Unknown effect)		<table border="1"> <tr> <td>+</td> <td>0</td> <td>-</td> <td>U</td> </tr> </table>	+	0	-	U
+	0	-	U			
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)		<table border="1"> <tr> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>		X		
	X					
8. AIR QUALITY (emissions, attainment status, state implementation plan, etc.) Fugitive dust during construction;		<table border="1"> <tr> <td></td> <td></td> <td>X</td> <td></td> </tr> </table>			X	
		X				
9. WATER RESOURCES (Quality, quantity, source, etc.) Stormwater during and after construction. Construction of a potable water well.		<table border="1"> <tr> <td></td> <td></td> <td>X</td> <td></td> </tr> </table>			X	
		X				
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.) Safety During construction. There are siting constraints related to the location of the outdoor range with respect to munitions QD arcs. Proposed location of the outdoor range with respect to the airfield is also a factor.		<table border="1"> <tr> <td></td> <td></td> <td>X</td> <td></td> </tr> </table>			X	
		X				
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.) Use of hazardous materials during construction. Removal of lead form soil at the current range.		<table border="1"> <tr> <td></td> <td></td> <td>X</td> <td></td> </tr> </table>			X	
		X				
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, flora, fauna, etc.) Potential adverse effects to prairie dogs and/or burrowing owls.		<table border="1"> <tr> <td></td> <td></td> <td>X</td> <td></td> </tr> </table>			X	
		X				
13. CULTURAL RESOURCES (Native American burial sites, archeological, historical, etc.)		<table border="1"> <tr> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>		X		
	X					
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)		<table border="1"> <tr> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>		X		
	X					
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)		<table border="1"> <tr> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>		X		
	X					
16. OTHER (Potential impacts not addressed above.) Noise from the range		<table border="1"> <tr> <td></td> <td></td> <td>X</td> <td></td> </tr> </table>			X	
		X				

## SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17.	PROPOSED ACTION QUALIFIES FOR A CATEGORICAL EXCLUSION (CATEX #) _____: OR	
X	PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.	
18. REMARKS		
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)	19a. SIGNATURE	19b. DATE
Elise L. Sherva, GS-12		2/17/04



AF Form 813 Continuation

Project Title: Small Arms Range

Proposed Action: Construct a Small Arms Range that will consist of an Indoor Firing Range an Outdoor Grenade Launcher Range and a Combat Arms Training and Maintenance (CATM) facility. The Indoor Firing Range and CATM will require a footprint of approximately 35,000 SF for the two facilities. The CATM will house two classrooms, a training simulator, weapons storage area, and office space for 8 personnel. The Outdoor Firing Range will require approximately 700,000 SF. The Indoor Range will have 21 firing lanes that will be designed for lead free practice rounds and 2 firing lanes that will be designed for firing machine guns with ammunition that contains lead are proposed. The outdoor range is intended for the firing of inert, lead free projectiles. The proposed location is near the eastern boundary of the base and is approximately 1000 feet north of building 1613.

No Action Alternative: Do not construct a new Small Arms Range.



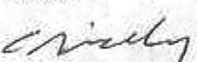
## REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol  
CRWU063006

INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on Separate Sheets as necessary. Reference appropriate item number(s).

## SECTION I - PROPONENT INFORMATION

1. TO (Environmental Planning Function)	2. FROM (Proponent organization and functional address symbol)	2a. TELEPHONE NO.
460 CES/CEV	460 CES/CEC	303-677-6819
3. TITLE OF PROPOSED ACTION Consolidated Services Facility		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date). Construct a 14,101 SF Consolidated Services Facility. The facility is required a facility to house Services Division functions that include Marketing, Resources and Readiness, Human Resources, Information, Tickets and Tours, Food Services administration, Combat Support and Search and Recovery, and an indoor Honor Guard practice area. The project is needed to relocate personnel from a leased temporary modular building into a permanent structure that is properly configured to house these functions.		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DCPPA) (Provide sufficient details for evaluation of the total action). See attached		


6. PROPONENT APPROVAL (Name and Grade)	6a. SIGNATURE	6b. DATE
Charles Nicely, GS-11		16 Jan 04

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = Unknown effect.	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)		X		
8. AIR QUALITY (emissions, attainment status, state implementation plan, etc.) Fugitive dust during construction;			X	
9. WATER RESOURCES (Quality, quantity, source, etc.) Stormwater during and after construction			X	
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.) Safety During construction			X	
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.) Use of hazardous materials during construction.			X	
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, flora, fauna, etc.) Potential adverse effects to prairie dogs and/or burrowing owls.			X	
13. CULTURAL RESOURCES (Native American burial sites, archeological, historical, etc.)		X		
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)		X		
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)		X		
16. OTHER (Potential impacts not addressed above.)		X		

## SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17.	<input type="checkbox"/>	PROPOSED ACTION QUALIFIES FOR A CATEGORICAL EXCLUSION (CATEX #) _____; OR
	<input checked="" type="checkbox"/>	PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX, FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)	19a. SIGNATURE	19b. DATE
Elise L. Sherva, GS-12		2/17/04